The Builder.

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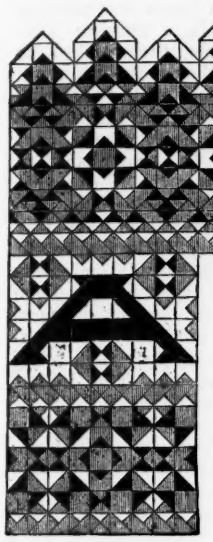
The Social Science Association in Newcastle-on-Tyne.



VERY agreeable and useful week has been spent by the Social Science Association in Newcastle. Several excellent papers, two or three remarkable indeed, have been read, and a large amount of very valuable discussion has taken place. It is to be regretted that much of this is necessarily unrecorded, and that what is fixed by the shorthand writer scarcely gets so wide a publicity as is desirable. The local press have done well in this respect, but the London papers find the amount of matter too much for them, especially in such days as these, when the mad doings of foreign nations demand so much space, and they are able to do little more than report the departmental addresses and to catalogue the headings of some of the papers. If the annual volume published by the Association could be quickly issued, and the subscriptions of the public would admit of its wide distribution free to public libraries, literary institutions, working men's clubs, and elsewhere, much good would be done. We cannot pretend to supply in any degree the deficiency of publication to which we refer. We can but touch a point here and there, and keep attention alive. We must add to what we have said as to the success of the Congress in respect of work done, that the word can scarcely be used as regards the numbers attending, when we consider the size and character of the town. About 900 tickets, we believe, were sold, a number much less than was anticipated. On the other hand, those inhabitants of the town who did take the matter up, were most active in their endeavours to render the week profitable, and co-operated with Mr. Edwin Pears, the able general secretary, in every practicable way. Hospitality was general. The Duke of Northumberland, president of the year, Sir William Armstrong, the Mayor of Newcastle, and others, entertained liberally, and many of the active members of the Association from London and elsewhere were received into the houses of the inhabitants. The banquet at Sir William Armstrong's residence, Jesmond (Jesus' Mount), was especially noticeable. The banqueting-hall, built a few years ago under the direction of the late Mr. Dobson, and the reception-room, quite recently completed from the designs of Mr. Norman Shaw, are of striking character, and of a size not often found in a private residence. The walls of the hall are of buff bricks, with red brick dressings; the roof of timber open. A wide arched opening, in the upper part of which is a music gallery, with organ, unites the hall to the reception-room. The circular arch, we may say, is used throughout: and the apartments, being erected in a Dene, are approached by long flights of steps from the higher level above. About 230 visitors dined on the occasion in question; the dinner was admirably served, and amongst the speakers afterwards the host and Sir Stafford Northcote were more particularly happy.

The address in the Town-hall with which the Duke of Northumberland opened the Congress did not wholly escape criticism: it had a reactionary tone, seemed not quite certain as to the result of general education, and viewed timidly all innovation: still it included many excellent observations.

The first departmental address was given by Mr. G. W. Hastings, as Chairman of Council, and reviewed the work of the Association to secure an improved and extended system of national education. The question might have been settled years ago, he said, if the counsels of the Association had been followed, and thus the long period would have been saved which had been lost in sectarian jealousy and judicial apathy. Thanks, however, to Mr. Foster and to the moderation of the House of Commons, the country had at last obtained in the Act of this year the broad outline of a national system of primary education. The measure might not be all that the friends of education desired, but it was at least a practical measure, and a great improvement on that which had preceded it, and to which the country owed much. One thing was at once required to make the present system work efficiently, and that was the appointment of a Minister of Education. Until such a step was taken the work of the educational department would not be performed in an efficient manner or the educational machinery work harmoniously. Their vice-president, Earl Russell, had endeavoured to obtain the appointment of a Minister of Education, but his amendment to that effect had been defeated. It was clear, however, in his opinion, that the time was at hand when a central organisation should be formed such as that which had been advocated by the vice-president of the Association. We quote a few further sentences from Mr. Hastings's address. "Not only," said he, "have we much to learn, we have also much to give up. We must abandon that exclusiveness which, in education as in other things, is too prominent a characteristic of Englishmen. Access to our universities must be made more easy, and the benefits of our ancient endowments must be more impartially distributed. We must place within reach of all classes of the community the highest culture which the country can impart; we must take away all excuse for ignorance; we must, it may be, compel those who are unwilling to come in. Not until this has been done can we hope to become a cultured nation; and it is in the conviction that the Association, which by its discussions and publications and the action of its council has already done so much in the sacred cause, will not relax its efforts in the new fields now open to be won, that I have dwelt, perhaps, too long—though how much remains to be said!—on this great question of education."

Mr. Hastings then adverted to the department of jurisprudence, which was treated at considerable length. He said:—"I have referred to a few of the legislative measures which the Association has originated, or has endeavoured to promote, but there is a function still more incumbent on it to fulfil, the promotion of a sound public opinion on questions of social and political science. It is matter of daily observation that even our educated classes are in lamentable ignorance on subjects the right understanding of which is essential to the national welfare. When we see public meetings held, and associations formed, to resist the spread of vaccination, and hear people, whose circumstances of light might have given them the opportunity of better information, urge their less instructed fellow-citizens to violate the laws framed to arrest the spread of small-pox and other terrible diseases, one is led to wonder whether there are not minds so framed as to be impervious even to the elementary teachings of science. There is naturally no limit to the fallacies entertained by people who despise investigation into cause and effect, and yet these seem to constitute no inconsiderable part of the whole community. A short time since, for instance, it was announced, truly or otherwise, that the average mortality in certain towns supplied with soft water was higher than in certain other towns supplied with hard; and immediately the conclusion is jumped at that hard water is more healthy than soft. I pronounce no opinion on the question, but it is obvious that the area of facts on which the conclusion is formed is far too narrow to justify such a sweeping induction; and that, moreover there are various other influences, such as soil, climate, occupation, which are just as likely to be answerable for the variations in mortality as the nature of the water supply. A similar logic arrives at the conclusion that if a child has been vaccinated, and has been subsequently ill, the illness is the result of vaccination, and overlooks the vast array of facts which prove the steady declension of small-pox wherever the great discovery of Jenner has been adequately applied; as in Ireland, for example, where at this moment a careful system of vaccination is stamping the disease out of the island. After the same fashion, economical principles of tried and incontestable verity are put aside on the flimsiest pretence. Not long since it was alleged, though never proved—proof being an inconvenience in these cases,—that the trade of the kingdom was falling off, and it was thereupon proclaimed that free trade was a failure, or at any rate that free trade on one side was a mistake, and that we ought to insist on its being reciprocal, or abandon it altogether. In other words, that if other countries are so foolish as to tax themselves with artificial prices on the articles they want, we ought to imitate their folly, and raise the market against ourselves."

Dr. Lyon Playfair's address, as president of the Education Section, was especially excellent, and we would gladly print the whole of it. We must confine ourselves, however, to a very brief quotation. He is speaking of—

Defects in our Educational System.

"The educational principle," he said, "of Continental nations is to link on primary schools to secondary improvement schools. The links are always composed of higher subjects, the three Rs being in all cases the mere basis of instruction. Elementary science, and even some of its applications, are uniformly encouraged and generally enforced. I shall not detain you with examples, as they are to be found in any work treating of Continental schools. But as we have no schools corresponding to the secondary improvement schools for the working classes, we suppose that we can do without the higher subjects used as links. With what result? Our primary schools, on the whole, do not teach higher instruction than a child of eight years of age may learn. In our class of life, our children acquire such knowledge as a beginning; with the working classes, they get it as an end. What an equipment for the battle of life! No armour-plate of knowledge is given to our future artizan, but a mere thin veneer of the three Rs, so thin as to rub off completely in three or four years' wear and tear of life. I am speaking on official record; for we are assured by inspectors that nothing under Standard IV. suffices for permanent use; and yet the Committee of Council tell us that four-fifths of the children, of ages at which they leave school, pass only in lower standards. Recently, under Mr. Corry's minute, inducements have been given for subjects higher than the three Rs, but, for some reason, it pro-

duces scarcely any result. So, under our present system of elementary teaching, no knowledge whatever bearing on the life-work of the people reaches them by our system of State education. The air they breathe, the water they drink, the tools they use, the plants they grow, the mines they excavate, might all be made subjects of surpassing interest and importance to them during their whole life; and yet of these they learn not one fact. Yet we are surprised at the consequences of their ignorance. A thousand men perish yearly in our coal-mines; but no schoolmaster tells the poor miner the nature of the explosive gas which scorches him, or of the after-damp which chokes him. Boilers of steam-engines blow up so continually that a committee of the House of Commons is now engaged in trying to diminish their alarming frequency; but the poor stokers who are scalded to death or blown to pieces are never instructed into the nature and properties of steam. In Great Britain alone more than 100,000 people perish annually, and at least five times as many sicken grievously, out of pure ignorance of the laws of health, which are never imparted to them at school. They have no chance of learning them afterwards, as they possess no secondary schools. The mere tools of education are put into the hands of children during their school time, without any effort being made to teach them how to use the tools for any profitable purpose whatever; so they get rusty or are thrown aside altogether. And we fancy that we have educated the people! Our pauperism, our crime, and the misery which hovers on the brink of both, increase terribly; and our panacea for their cure is teaching the three Rs up to Standard III. The age of miracles has passed by, and our large faith in our little doings will not remove mountains. It is best to be frank. Our low quality of education is impoverishing the land. It is disgracefully behind the age in which we live, and of the civilisation of which we boast; and until we are convinced of that we cannot be roused to the exertions required for its amendment. This is no new complaint, and has been long ago made by far higher authorities than myself." In imitation of our classical schools, Dr. Playfair maintained, verbalism and memory-cramming had grown up as tares and choked the growth of the wheat. Words had taken the place of conceptions. A child could tell you about the geography of the wanderings of the children of Israel, but had no conception whatever of the ordinary phenomena around it. It was hopeless to put to them the commonest scientific questions. Whence comes the water that fills the Thames? What is the origin of hail, snow, rain, or dew? Why does the sun rise in the east, or set in the west? What produces night and day, summer and winter? "In history they could rattle out to you the names and dates of kings and queens, perhaps even the names and ages of all Queen Anne's children as they died in childhood; but, as to a true historical conception, apart from memory cramming of words and dry facts, to be vomited forth upon the examiner, it required a very good school under the old system to find it. Words, instead of ideas, were worshipped. Inspection, under the old system, did something to correct this tendency to verbalism and cram; under the new system they have no time, and, if they had, would find fewer of the higher subjects taught in any way. The teaching of science, if properly done, is the reverse of all this, and will go far to remedy its defects. Books in this case ought only to be accessories, not principals. The pupil must be brought in face of the facts through experiment and demonstration. He should pull the plant to pieces and see how it is constructed. He must vex the electric cylinder till it yields him its sparks. He must apply with his own hand the magnet to the needle. He must see water broken up into its constituent parts, and witness the violence with which its elements unite. Unless he is brought into actual contact with the facts, and taught to observe and bring them into relation with the science evolved from them, it were better that instruction in science should be left alone. For one of the first lessons he must learn from science is not to trust in authority, but to demand proof for each asseveration. All this is true education, for it draws out faculties of observation, connects observed facts with the conceptions deduced from them in the course of ages, gives discipline and courage to thought, and teaches a knowledge of scientific method which will serve a lifetime." All the science which would be necessary to give a boy a taste of the principles involved in his calling, and an incitement to pursue them in his future life, might be given in illustration of other subjects. Instead of mere descriptive geography drearily taught and drearily learned, you might make it illustrative of history, and illustrated by physical geography, which, in the hands of a real master, might be made to embrace most of what we desire to teach.

To the address of the President of the Health Department we will look hereafter: it well deserves attention. On another page reference to the Working Men's meeting and other parts of the proceedings will be seen, and in our next number we may find space to give some additional particulars, and to refer more especially to the progress and condition of Newcastle.

On the evening that the workmen met in the townhall, the ancient castle (Norman in date), was thrown open and lighted, and Dr. Collingwood Bruce, described some of the relics it contains, and exhibited views of

The Roman Wall,

to which he proposed leading a party on the following day. Dr. Bruce knows every stone of the wall and its history, and the excursion had been looked forward to by many in relief of the heavier work: but it turned out no child's play. It involved a considerable amount of walking, some eight miles, and no end of hurry. A correspondent, who was with the party, writes,—"Now eyes were strained to peer into some hole—now directed upward to some hill, and called upon to descry objects north and south at the same time. The indefatigable and enthusiastic antiquary never wearied or rested. The crowd rushed to see what he pointed out, and ran to overtake him. Ladies palpitated over hills, ditches, and stone walls; elderly philosophers perspired in futile endeavours to keep in sight of their ever-darting guide. Now and then he invited ladies to sit down on mounds of slipping stones, or on heaps of gliding planks left by a house-builder by the wayside; but long before they could find a spot of rest everybody had to be up and off again, so that attempts to rest were far more wearying than the unmitigated hurrying. At one moment the doctor was discovered adjusting himself upon uneasy and uncertain stones, from which he steadily discoursed, no one knew how. Next he was perched on a crumbling wall, balancing himself by his wand as Blondin does upon his rope. Had not the learned expounder's story been impartially delivered, he must have fallen over on that side to which his narrative leaned. Once he did fall headlong down a dyke, and was flatly distended on the earth. It was thought we should then have a moment's respite. But, alas! this was not to be. The elastic and resilient antiquary was up again before any one could get up to him, vowing that he could have saved himself but he must have broken his stick, and as he was quite unbreakable himself he preferred the fall." Until the party arrived, crazed and amazed, at the station of Borcovicus, nobody really beheld anything; nevertheless all were satisfied in the long run, and got back to Newcastle safe and happy. They had much less trouble when they went, on Monday, to

Messrs. J. Wigham Richardson & Co.'s Ship Yard,

at Low Walker, to see the launch of a fine iron screw steamer, the *Expresso*, and were entertained most handsomely. The yard of this firm is the oldest on the Tyne. Since the occupation by the new firm, the works have gradually extended, until now they give, on an average, employment to about 800 men, and the average tonnage launched by the firm is 10,000 tons. The vessel—the launch of which the members of the Social Science Congress witnessed—is the largest merchant vessel that has been built in this country for Italian owners. Her length is 308 ft. over all; breadth of beam, 35 ft.; extreme depth, 28 ft. 6 in. As she is intended for the emigrant and mail traffic between Genoa and the river La Plate, in which trade speed is the greatest desideratum, her lines have been designed by Mr. Christie, the managing partner in the building firm, solely with a view to speed. The floor of the cabin is of inlaid work, and the sides of the saloon will be handsomely decorated with views of Italy and South America. An hospital is set apart on the ship for thirty persons, and every convenience for the crew and passengers is provided. As a means to secure greater safety, while at sea, the hull is divided into six water-tight compartments by means of bulkheads, so that an accident in one portion of the vessel will not immediately affect the others.

Replying to the toast of his health, proposed by Mr. John Bowring,

Mr. Wigham Richardson, in the course of a particularly interesting speech, said that the ship being intended principally for passenger service in contradistinction to goods traffic, almost everything had, as in an express train, been subordinated to speed. Her owners were of opinion that by so doing they would always have the preference among intending passengers; and although there was nothing that cost more to attain in a steamer than speed, since if, for example, they wished to gain 50 per cent. in speed, they must burn more than three times as much fuel; still, if they considered that the *Expresso* would have nearly one thousand souls on board of her, it was evident that if the passage could be accomplished in twenty days instead of thirty, the mere saving in provisions would be very considerable. He believed the extent of the emigration from Italy to South America was very little known in England. Probably from 500 to 1,000 emigrants left the port of Genoa alone every week, and one house there (and not by any means the largest emigration agency in that city) received remittances to pay the passage of their relatives of over 100,000 francs per annum. The Italian ships very often have mottoes either on the prow or the stern, or at the entrance to the cabins. This steamer has a line taken from one of the plays of Goldoni:—"Chi non escedal suo paese vive pieno di prejudizzi," which may be rendered:—"He who never leaves his native shore lives ever full of prejudices."

We could scarcely find a better line to end with.

HEALTH AND SOCIAL PROGRESS.

The working men's meeting, held in Newcastle, as in other towns, by the Social Science Association, passed off very successfully. The fine town-hall, where it took place on Friday evening in last week, was crowded. Mr. Alderman J. Lothian Bell presided, and addresses were delivered by Mr. Rupert Kettle, Mr. Godwin, Dr. Lyon Playfair, Mr. Newmarch, the Dean of Durham, Mr. Robt. Rawlinson, and Dr. Bowring, in the order we have placed their names, the chairman introducing each speaker with a few judicious sentences. We confine ourselves to two of the addresses which refer to matters with which we ordinarily deal.

Mr. Rawlinson, taking as his subject the

Habits of Workmen not long ago,

said:—I suppose I am called upon to address this vast assembly of working men because I can claim the privilege of having sprung from the same stock as the men I see before me; and it was imagined that from my past knowledge and experience I might, in the limited time afforded to me, be enabled to say something of use,—something of advice,—probably something of warning, something of encouragement. I am old enough to remember working men for fifty years. It is fifty years since my acquaintance first began with the working men of this country. I do not know that I am competent at this moment to judge with accuracy of the feelings and the conditions of the vast mass of the working men I see before me, but it may probably both instruct you, and in some respects amuse you, if I tell you what was attempted to be inculcated in my mind when I was a youth of ten years of age. It was, as far as my experience went, the common conversation among working men that the cleverest man was a good drinker and a good "fuddler." All operatives connected with the building trade at that time were connected with drink and degradation. When the foundation-stone was laid, it was celebrated by drinking; when the first floor was put on it was celebrated by drinking; when the roof-tree was reared, there was another bout of drinking. If a workman removed from one place to another, he must pay his footing, and there was a celebration by drinking. Now, I sincerely hope that such customs are of the past, and not of the present. They were of the present in my day and generation, and if practice and precept could have made me a drunken man, I should have been dead long ago of drinking and sottishness. But something in my nature rebelled against it. I do not take credit to myself that I resisted, because I believe that I was constitu-

tionally unfitted to be a drunkard; for if I was tempted into any excess of an evening, I paid the fearful penalty of a sick-headache next morning. You have been told that it is necessary to the prosperity of the working man that he should be educated. I tell you so too. My friend, Professor Lyon Playfair, has described to you the process the State is about to adopt to give to all your children means of a better education, and let me appeal to you as fathers of families, and I am exceedingly sorry that when you came here to-night you did not bring your wives with you, because I think it is just as necessary that the wife should hear all these arguments as it is that the husband should hear them. If every man has to hold his position in the world, and especially to raise himself in the world, he must do it with the assistance of that helpmeet that God has given him. Of what avail will your schools be,—of what avail will all this teaching be, if it stops when the school-door is shut?—if you do not in your own homes follow out that education given to you in the school, and perseveringly strive to make more of it,—if you do not take the talent entrusted to you, and so work it that the five talents shall be ten talents, and that at the end of life the Great Master may say to you,—"Well done, good and faithful servant, enter into thy reward." Every working man's home, as Mr. Godwin has told you, should be so improved that it should be his comfortable residence—his castle, and in time of sickness his hospital. I do not think it a creditable state of things that charity should so supplement that condition of the working man that when sickness overtakes him he is necessarily put with an aggregation of human beings in the same state of misery. When civilisation has fulfilled its mission, and when statesmen have learned the full lesson of their duty, and when Governments so regulate and so order the laws, I hope that if we do not see it our children or children's children will see it—that every man can have a roof over him; can have room-space about him and comforts within himself; he shall not need to go externally either to the dramshop or the beershop to get out of the court in which he has to dwell, or on washing days to get rid of the smell of the soap-suds, to spend his earnings selfishly and improperly in debasing himself, degrading his wife, and beggaring his children. The great Lord Brougham, whom I have had the pleasure on several occasions of seeing in the place of your chairman at this great meeting, and who, so long as life was spared him, never missed an opportunity in connexion with this institution, which he founded, of presiding over such meetings as this—Lord Brougham compared society to the Egyptian pyramid, that emblem of stability. The lower courses, the great masses of the people; the intermediate course, rising up to the apex; the intermediate grades of society, crowned by the king or president, as the case may be. Now, it is quite clear that the stability of the pyramid, in spite of its form, would be nothing if the lower courses were not sound and stable; and society most certainly at the present time and in this country, and, as far as I have studied the question in other countries, is not in that stable position, because the welfare of the working man has up to this time, from the first beginning of history, been grossly neglected. It must be that men will begin to wish for that stability, for there is no state in which society can be safe and stable if the foundation be not sound, good, pure, and true. In a remarkable speech made by that great statesman, philanthropist, and speaker, John Bright, at Birmingham, he used this faithful and remarkable simile: he said that when the Atlantic telegraph was lost in mid-ocean, and when it was thought to be hopelessly lost, the iron grappling hand of science was lowered more than 2,000 fathoms deep—where the pressure was 5,000 lb. to the square inch—that it successfully grappled the cable and brought up the line of communication which bound the two worlds in one; and he said he thought it was time to consider if the human hand of statesmanship could not be lowered down to the depths of our civil degradation to grapple with the amount of misery and destitution that pervaded society. I sincerely hope, he said, these meetings will enable us to come to right conclusions, and enable us to advise the Legislature to enact wise laws, and any little teachings laid before you will send you home so—for that is the bottom of it all—that you individually, each man for himself, shall study the question, and strive how much better he can make himself, how much more comfortable he can make his home, and how much happier he can make his wife and children.

Mr. Godwin took for his subject,

Health and Home,

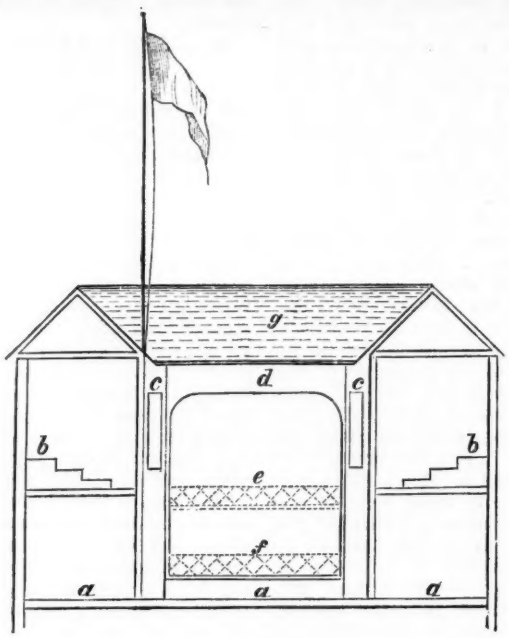
and at the starting begged his audience to receive any words that might drop from him, and which might be less agreeable probably than the words they had heard from Mr. Rupert Kettle, in the same kindly spirit as that which prompted them. He said*:—You know very well that one of the departments of the Association is devoted to the improvement of public health,—to such questions as properly constructed houses, good sanitary laws, recreation grounds, and other matters that conduce to the general welfare and the general happiness. On all similar occasions this subject has been entrusted to one of the speakers, and I feel it a compliment that I am here allowed to say half a dozen words to you upon it. I have given attention to sanitary matters in one way or another for many years, and if I should offer any objection to what I have seen in your town, it will be done without any intention whatever of giving offence. There still exists very great ignorance in the matter of public health—an ignorance, I might say, in all classes, though, for my own part, I can scarcely recognise classes,—in England, classes all run one into another,—I say there is great ignorance in the community upon this matter. They fancy, for example, that they know all about air. If you begin to talk on the subject to a body of men, such as I see here, they say, "Oh, we know all about that;" but, unhappily, the great majority of them act as if they knew nothing about it. The poet writes of "trifles light as air," but air itself is no trifle, that is quite certain. If you could but estimate the amount of mischief done by this ignorance of air, it would be so stupendous that it would astound you. Some persons have a notion that the only means of comfort is to shut up every hole in a room, and prevent the access of air. It is God Almighty's arrangement to give an unlimited quantity of pure air, and it seems to be man's arrangement to endeavour to limit that supply, and to deteriorate its purity in every way in his power. I have often mentioned the observation of an old clergyman who used to complain greatly of his flock for shutting out the air: he said, "If I were to preach in a barrel, they would stop up the bunghole." That is just what the majority of us do. I have been in houses—I have been in some to-day—where, for example, the top sash is nailed up—a suicidal act—doing such damage as one could scarcely tell of in the ten minutes that have been allotted to me. Now, people will not drink dirty water,—not willingly, though sometimes they are obliged, even in Newcastle,—but they have no objection whatever to take in dirty air. If they would but remember that from dirt comes death; if they would but realise the absurdity of the saying that "own dirt is no dirt;" if they would but see the absurdity, the dangerous absurdity of that saying,—I am sure they would act very differently. From our own breath may come our own death. It has been shown pretty conclusively that about 700 cubic feet,—say, 10 ft. by 10 ft., and 7 ft. high, and we can all imagine a room of that sort,—is about as small as a single individual should inhabit. I have been in houses in this town where six people were sleeping in that same space; and, therefore, having 120 cubic feet, or something of that sort each, instead of 700. Many of these evils come from want of thought, and they might be guarded against even by the people themselves, although I must confess that men are often placed in great difficulties. The increase of population in Newcastle, for example, has been much greater relatively than the increase of houses, and overcrowding, which means all sorts of dangers, all sorts of miseries, crime and death, is still prevailing in many parts of Newcastle to a very great extent. I knew a bed in a hospital where every patient died who was put into it; I knew a stable in which no horse would live beyond a certain number of months; I know houses in London where successive families are stricken down by fever as they go in, all of which might be prevented by a little knowledge. I ventured at a meeting yesterday to speak of the sewers of Newcastle (I am obliged to run from one question to another because of the short time allowed); and I am afraid that I a little annoyed some of the excellent authorities of your town. I do not venture to complain in the least of anything they have done; I simply say that a vast deal yet needs doing in Newcastle. I believe that for some time past a great deal has been done by your excellent town surveyor, Mr. Fulton, and by the corporation; but if any member of that corporation thinks that this town is well sewered, that it is well provided with water, that proper arrangements have been made for the education and recreation of the children, then he is labouring under a great mistake, and it appears to me that the corporation ought to be obliged to any stranger who, with a fresh eye, shall tell them what seems wanting. Now, if I were not afraid—I am almost afraid, but if I were not, I would tell of two or three things that I saw yesterday afternoon in this town. I have walked through some of the chares and some of the courts of Newcastle, and I must confess that in many of them there exist things of which I thoroughly believe those who think I am too critical cannot be aware. For example, I went into Rosemary-court, I believe it is called, and I found that there were seventeen houses dependent upon one miserable wretched hole for convenience. A poor woman, well dressed, and of most respectable appearance for her position, lamented to me the condition under which they lived, and her description of it was truly painful. I might dilate upon it—I might speak of courts leading out of Market-street, and others quite close to the townhall, and to the best parts of the town, all of which require supervision when it can be obtained. I do not say it can all be done at once. I know it cannot be; but let it be remembered that it is needed; let it be remembered especially that you do want a proper outlet for your sewage. But, if possible, the sewage should not be wasted but applied to the land, where it would be productive; we should put back to the earth that which we are plainly taking from it. The badness of parts of your town can be easily made quite evident. If you happen to live in St. Andrew's, for instance, you have a fourth chance more of life than you have if you live in All Saints',—that is to say, for every twenty-nine persons who die in All Saints', there are only about twenty-four persons who die in St. Andrew's. Now, say that five persons additional in a thousand die because of bad arrangements,—and I should say that a great many were dying even in St. Andrew's from bad arrangements; but take the worst as compared with the best, and what does the death of five persons in 1,000 in this town (a town of 130,000 inhabitants) imply? It means the unnecessary death within the year of 650 persons. Points of this sort, if got into the mind, will show the necessity and value of sanitary movements and improvements, the provision of fresh air, good water, and pure food. And, touching food, if you were to hang two or three tradesmen who adulterate it, no wrong would be done. I would do it without scruple. There are a number of other things upon which I should be glad to touch if time permitted. There are those houses which are built back to back. I have been in a hundred of them to-day. This state of things cannot be helped at present, I know, but in Heaven's name get rid of them as soon as you can. It is impossible to be lively, or healthy, or happy in a house without an opening at the back, without water, and with four times the number of people living in it that ought to be there; indeed, under such a state of things it is scarcely possible to be virtuous. I had a sore throat simply through passing for a couple of hours through these places, which produce on the inhabitants a depression of spirits, and a general degradation of health, which leave them no power of doing good, and no power of exertion. Just compare the condition of a man in a healthy house, with a happy wife, and that of a man living in a house of a different sort, having bad air, bad smells, and necessarily a grumbling wife, a wife that cannot be clean, even if she would. Positively there were many houses I saw which could be called little better than charnel houses. I know the corporation go on gradually improving in these matters, and they want and must have your co-operation, because, for effecting the objects desired, it is necessary to make rates, and in this way they must have great co-operation, and that not only in the aggregate, but individually. In your own houses, very much can be done if you get knowledge on these sanitary points. I saw an enormous number of courts unpaved to-day; get these places paved, for an immense deal of good may be done even by paving. It is a serious thing to have these courts unpaved; it does not merely mean uncom-

* We adopt the report given in the *Newcastle Chronicle*.

fortable walking, but bad air, decomposition, and, in fact, everything that is bad. Such matters may be considered small things in themselves, but they touch upon the happiness and prosperity of families, and these are by no means small things, and therefore perhaps you will pardon me for the ten minutes I have occupied in pressing upon you the great importance of sanitary knowledge and sanitary improvements.*

SHAKSPEARE'S GLOBE PLAYHOUSE AND OUR GAFFS.

Curious enough how, says Mr. Carlyle, as it were by mere accident, this man, William Shakspeare, came to us. Curious, indeed, it was,—one might almost say miraculous,—considering from out of what a dingy, dismal place, and through what a narrow, dirty court, he did emerge into the light of day. Before we venture to describe the "Globe" Theatre, it will be necessary to say a word or two about the "Blackfriars,"—quite as curious a subject, by the way, as the Globe itself,—perhaps even more so, as it was to the Blackfriars that Shakspeare first made application for dramatic work. The Blackfriars Theatre was not a regularly built and designed theatre, but simply a common two-story house converted into a theatre by a little pulling down, and alteration, and tinkering. Mr. Knight cannot quite make it out; but the whole affair was simple enough. The partition between the front and back parlours was taken down, as also the partition above, the floor over the back room removed, and partially from over the front room as well, so that the whole space from the lower floor to the ceiling of the room above was clear. This floor, in part being raised 2 ft. or 3 ft., constituted the stage, the rest of the space being the pit, or space for the "groundlings," as the pit audience was termed in Shakspeare's time. The portion of the floor of the front upper room made the gallery. This was the famous Blackfriars Theatre. An ordinary private house with the floor between the two stories pulled down made a "playhouse." In the Lower Marsh, Lambeth, there was, and is, a small theatre constructed almost timber for timber in this temporary sort of way. It once gloried in being a gaff, but is now a chapel, and some of the scenery yet remains to remind those who visit it of its former vocation. A very considerable effort of the imagination, says Mr. Knight, and some knowledge of minute facts would be necessary to form an accurate notion of that building in the Blackfriars in which we may conclude the first plays of Shakspeare were exhibited. Not so; for the fact is that in this very ruin of a playhouse may be seen almost a *fac-simile* of the playhouse in the Blackfriars, in which Shakspeare acted and wrote. Few are likely to visit, or have ever visited, this place; but there is another, in a somewhat different quarter of the world, and filled with another audience, which will realise to a certain extent the Blackfriars to any who feel curious enough about it. We refer to the room or "dormitory" of the Westminster School in which is annually performed the Westminster Play at Christmas time. This is merely a long room fitted up with a temporary stage and gallery, the pit being the floor of it, and would doubtless have seemed to Shakspeare and his company quite a magnificent place; indeed, we may be quite sure that Shakspeare's imagination,



vast as it was, could never have reached it. So much for the Blackfriars, on which a good deal more might be said, for there are two or three places in the outer parts of London which might bring it vividly before the mind's eye, but our present business is more especially with the famous "Globe."

The Blackfriars Theatre, as we have seen, was a common "private house" converted into a theatre in a temporary and somewhat rough way; but the Globe Playhouse was a regularly designed and constructed theatre,—a place in every way, as things then were, adapted to its purpose, and we may feel quite sure that the building, whatever we may now think of it, was fully equal to all that was required of it. Nothing, surely, was ever more singular; for how in such a place a full five-act play of Shakspeare's *could* have been performed, may remain a mystery, or the theme for a German theory. We have given a *section* of the Globe Theatre, drawn from a careful consideration of all we could collect bearing upon it. There is not much, truly, but still enough to make one pretty nearly certain of its general accuracy, and any professional reader can, from the section, readily realise to himself the general aspect of the building outside as well as inside. The Globe was built in 1594. It was, as will be seen, open to the weather; in architectural and classical language, this temple of the Muses was *hypæthral*, the gallery (*b*, *b*) was covered, but not the pit (*a*), or space for the "groundlings." The stage could have been but partially covered. It was octagonal on plan, at least outside, as the old print of it shows; but inside we are inclined to think that it was circular. The pit seems to have been level, as it is to this hour in two of the gaffs, with probably low narrow benches without backs, for the accommodation of the "penny" audience. The stage was raised, as will be seen, about 2 ft. 6 in. or 3 ft. above the general level of the pit, and had in front of it a low railing, probably something similar to the footlight railing in an ordinary theatre. The gallery ran round the building, stopping at the private boxes (*d*, *d*), of which there were two next the stage, very small ones, and specially reserved for special visitors to the house. There is no evidence to show that there was any second gallery; so that there is but one gaff even now existing in London that can be instanced to afford an idea of the *size* and *arrangements* of this little, inconvenient, weather-beaten playhouse of Shakspeare's. The Alhambra, Shoreditch, a penny house, though not a pure gaff, shows, in a luxurious way, what the Globe was like, and may be nearly the size of it, but not quite fairly representative, inasmuch as it is covered in. In size it must have been from 25 ft. to 30 ft. across, from the one side of the gallery to the other. There were *no scenes* of any kind, or slips, or even a curtain, as some think, or, indeed, any of the appliances of a modern theatre, even of the smallest kind. The modern "gaff" would have electrified poor Shakspeare, and in the "Bower," a gaff, he would have thought himself more than a manager. The only place in London nowadays in which one *scene* does the work of the whole play is in the Westminster Dormitory before named, where a pleasantly-painted view of the Athenian Acropolis, though the plays are always Roman ones, does duty for all times and circumstances; but in Shakspeare's day there was not even this, but at the back of the stage, at about 7 ft. from the ground, there was a small gallery (*e*), from which, as it would appear, the principal speeches were delivered. Any change of time and place was indicated on the stage by the bringing in of some piece of stage furniture or other indicative of it. Thus a bedroom scene was shown by the presence of a small couch, a living-room by a chair and table, a garden by a flower-pot or two, and so on. A little of this kind of realism yet lingers in the gaffs, the scenery not having quite banished it. It is well to mention that some of the audience sat on chairs placed on the stage, and that the musicians also sat or stood there, there being no space put aside for an orchestra. All the floor of the stage being thus occupied, but small space could have remained for the performers, and we can well imagine how inconvenient and crowded it must have been, and how *few* players could have been on the stage at one time; and this may, perhaps, in part account for the little gallery at the back of it, for sometimes it must have been most desirable to show the "whole strength of the company," small as it was, and some of them doubtless mounted into this gallery to show themselves.

In one of the most characteristic of the modern London gaffs, unfortunately burnt down but a year or so ago, a very small place in the dismal regions of the far East, a thought or two from before Shakspeare's day might be seen and recorded; for the "supers" were children, as they often were, for the children of the Chapel Royal, and St. Paul's, and Westminster, before the enlightenment vouchsafed to their modern successors, acted plays and interludes even before Majesty itself. These youthful performers in this place filed on to the stage, danced a few steps, then remained at the back, "all in a row," through the whole performance of the player or singer who might happen to be going through a character of his own, but without any reference to them, till, it being over, these supers danced a few more steps, and then filed off again. It was some such work as this that our immortal bard went through, whether on gallery or ground, when he first ventured on the perilous sea of London dramatic life; and he might have comforted himself, had he known it, by a recollection of the fact, that, as far back as the time of the old Normans, in the twelfth century, Abbot Geoffrey, of the abbey of Dunstable, had a play acted by children pretty much, as we may suppose, in this strange way. It may seem to many rather dull, on paper, but it is not so in reality,—indeed, it is a very pretty idea; and one cannot help wondering, as we get to know the place he had got to, whether our immortal poet repented or no of having "run

* Commenting on these observations, the *Newcastle Chronicle*, in an able leading article, says,—"At the working men's meeting, held under the auspices of the Social Science Association, in the Town-hall, Mr. Godwin drew attention to the absolute want in many districts of Newcastle of good sewers, good water, good houses, and good recreation ground, or the ordinary conveniences of civilisation. In one spot, "Rosemary Court," Mr. Godwin found seventeen houses dependent upon one wretched hole for convenience. Facts like these sufficiently account not only for a high death-rate, but for aggravated immorality. Where decency, ordinary decency, cannot be maintained, the graces of virtue are impressed. It is the habit to assume this state of things is inevitable. There could not possibly be a grosser delusion. A good house is the ambition of even the humblest of our countrymen, and when Englishmen herd together in such hovels as Mr. Godwin so graphically described, it is only under the compulsion of supreme necessity. It is confessedly difficult to make small houses pay, and in that difficulty we have an explanation of the lack of comfort to which the least fortunate section of the community is compelled to submit. But this obstacle is not insurmountable. Where competent architectural skill is brought into play, it is perfectly possible to secure a fair percentage upon the erection of workmen's houses. With that fact demonstrated, we may expect that the dens of Newcastle, which Mr. Godwin denounced, will quickly disappear. While they exist we cannot hope for even comparative immunity from either disease, immorality, or crime."

away from his master to London town as a serviture."

It is obviously impossible to go at length into all the little almost inappreciable, though, put together, important matters connected with this most curious subject; but surely no time and painstaking could be thrown away in the attempt to bring home to the modern mind the *surroundings* of the man Shakspeare, who from a very mean rank, rose to the top of his performance, the *Ghost* in "Hamlet," not in Drury Lane, but the Globe—a place inferior to any modern gaff. There is, however, one thing connected with the building not to be passed over,—it is the curious indenture or agreement and part specification which has come down to us from the year of grace 1599, between Philip Henslowe and Edward Allen, and Peter Streete, carpenter and carver, of London, for the building of the Fortune Playhouse, and it seems to throw light on the Globe, for the dimensions are given and a sort of general description of the work to be done in the building of it, and is, indeed, a rough description of a playhouse of the time, and has helped us to a better knowledge of the Globe than would have been possible without it. The contractors are required "to provide all manner of workmen, timber, joists, tile, lath, boards, doors, bolts, hinges, glass, workmanship, and other things whatsoever therein shall be needful." With documents such as this Shakspeare must have been well acquainted and perfectly familiar; for, though not a manager, there can be no doubt that he was a "property-man" and stage-manager, both from the very necessities of the case, as we see it when well acquainted with the Globe building, as from the recorded fact, which even Mr. Knight does not deny, that he bought and sold, and let out theatrical dresses, and really did quite a little brisk trade in the providing and loaning out to —shall we say it?—needy actors and "supers" such necessary costume as they could not afford to buy. Thus wonderful as it seems at first sight, till you come to see into the ways of the Globe Theatre, its actors and its audience, to find this man William Shakspeare, the dramatic poet of nature, and of all time, mixed up with all these little trifling and trading matters, picking up a few pounds or shillings in any way he could, and through every source that presented itself; for no one ever seems to have felt the truth of the words, "if money go before, all ways do lie open," more keenly than he, and which, considering his drear and dark apprenticeship to the trade of getting it, it is no wonder he did feel.

It is important to remind the reader that the main idea for the arrangement of a playhouse came from the custom of using *inn yards* for the representation of plays, and which were, of course, open to the air, with a gallery or galleries round three sides of them. On the *ground* of such an inn the players and the audience alike stood; the better sort sat in the gallery above; so that a playhouse was simply as far as possible a copy of this very simple arrangement. In the yet remaining old-fashioned inn of the "Four Swans," Norton Folgate, Shoreditch; and one other, perhaps still better as having but *one* gallery, a small half-ruinous inn, opposite Christ Church, Mile-end, may be seen a possible theatre of this kind, though improvements are making havoc with it in more ways than one, the galleries having been all glazed. The Globe was little more than a copy of one of these inns; but octagonal on plan, with a raised stage, it did not even occur to the builder to cover it in. Lights were burnt by day during the performance, not foot-lights, but bracket lamps, one or more on each side of the stage. Time was when the pit of a theatre was the cheapest part of the house, as it must have been in the Globe, and is now in some of the gaffs which do not boast of a *second* gallery; for where this exists the "groundlings" are promoted to higher seats, and the gallery holds *the* audience. This is the arrangement in the "Bower" Theatre, the "sustained splendour" of the neighbourhood occupying the middle or "dress-circle," on a level with the private boxes. The pit thus becomes more select and somewhat safer for those who feel a little timid. All these things are the material arrangements of the "gaffs," and were precisely those of the Globe gaff in which Shakspeare played and strutted his brief hour, and did all his magical and world-famous work. "He could have ruled empires," says Emerson, in a burst of hero-worshipping enthusiasm; "I feel that he could." He might have done so; but it is quite sure and certain that he did not rule, much less create, a Penny Gaff; he did not even act in it, but he moved about in it, was helpful to every one in it, and, last of all, in an altogether unconscious and unnoticed sort of way, wrote for it, and lent to each one of his fellows brains as they could take them; but it was not for the *world* he wrote, but for the Globe Gaff!

ARCHITECTS AND THE BOARD OF WORKS.

An inestimable friend, who religiously reads every line of the *Builder* chiefly for the purpose of finding something misstated or forgotten, wants to know why we, like other journals, have not stated that Mr. James Pennethorne, late an attached architect of the Board of Works, is to be Knighted. Simply because the assertion is a little premature. The real state of the case is this. The Chief Commissioner informed Mr. Pennethorne that the Prime Minister would recommend that the honour of Knighthood should be conferred upon him, if agreeable to him; and Mr. Pennethorne, we believe, replied that, considering the circumstances under which he quitted office, he should like it: so probably at the end of the year, when the Queen returns to Windsor, the well-deserved honour will be conferred. Inasmuch as we ourselves suggested, on the completion of the London University Buildings, that such an evidence of Her Majesty's consideration would be highly esteemed by the profession, it must be unnecessary for us to say that no one will more heartily hail our esteemed colleague and friend *Sir* James Pennethorne, when the time comes, than we shall.

Mr. Pennethorne's business at the Office of Works will go into several hands, but the Office of Woods' business is now referred, and probably will so continue, to Mr. Arthur Cates; but without an appointment, which for him is just as good in a pecuniary point of view.

We have lately glanced hastily at a printed paper,—whether a draft and merely at present for consideration, we do not know,—containing a scheme as to the duties and remuneration of architects employed on public works, drawn up by the Government Board of Works. It is very precise and stringent, but on the whole did not seem unfair, except that it reserves to the Government the nomination of an arbitrator if differences arise. The percentage is left open: but one-third of the remuneration is to be paid when the builder's contract is decided; one-third at a second stage; and one-third when the builder is paid his balance. Would it not be well for the Government to submit it to the Institute of Architects before it finally adopts it? There ought to be two parties to such a document, to prevent chafings and soreness, and in some, perhaps, a sense of unfairness. The profession as a body consists of fair and honourable men, and would feel disposed to consider such a document in a candid spirit. This would save future difficulties and misunderstandings.

COLOUR IN MODERN STAINED GLASS.

Continuing my observations, it is asserted that stained glass, which we have learnt "to make and use in the skilful manner which the old architects did," and which we now apply with "excellent effect," was only part of the ancient system of coloured decoration, and necessitates the application of colour to the entire structure.

Passing by the unproved assertion that the architects of those days were the designers of the stained glass of their time, as well as of the coloured decoration of their buildings—which was disposed of in my last letter—I would ask whether, even if they were, we are called upon, because their buildings and their mason's work deservedly rank amongst the highest efforts of architectural art, to accept with a slavish and undiscriminating admiration whatever else they did. We know well that, although their mouldings and conventional foliage were of the most effective and exquisite character, they were utterly unable, down to the middle of the thirteenth century, to draw or to carve correctly the human figure; and if we reject as utterly unworthy of our consideration the irrational demand which would require us to adopt these quaint but ignorant attempts of Mediæval artists to represent the human form as the models we are to follow in the sculpture of the present day, surely we are equally at liberty to consider whether their use of colour in windows and on walls is, or is not, in accordance with the rules of good taste and high art, as we now understand it, and worthy or not of our adoption and imitation.

It may be said, it is true, that this matter may be supposed to have been settled for us long ago; that we have for many years past been designing and executing windows after the fashion of those of the Middle Ages; and that it is rather late at the present moment to raise this preliminary question. On the other hand, it is, perhaps, at the present moment, when we are called upon to extend this coloured decoration in our church restorations, from the windows to the walls, that it especially behoves us to consider well what we are about to do; to review dispassionately what we have already done; and to examine well whether the results of the exercise of this new art, if art it be, are really and undeniably as "excellent" as they have been declared to be.

Permit me to assist those who may desire to enter on such an examination, by describing a stained-glass window,—one out of five or six large windows in a church which I have lately seen,—which, recently issuing from the workshop of one of the most distinguished manufacturers of stained glass, may be taken to be a fair type of the more costly stained-glass windows of the present day. The subject is the Crucifixion. The central figure is, of course, that of our Saviour on the cross. His loins are girt with a cloth of ultra-marine blue, having a rose-coloured lining. On the left stands the blessed Virgin, clad in what appears to be a green baize wrapper, lined with salmon-coloured taffeta, and an under-garment of bright vermilion, adorned with gold-embroidered collar, cuffs, and border. At the foot of the cross is St. Mary Magdalene, clad in a Prussian-blue upper garment and pea-green robe. She wears a collar of apparently silver filagree work round her neck. On the right stands St. John, in raiment of three colours,—scarlet, blue, and green. Next to him is seen St. Mark, in a diapered amber-coloured vesture, over which is thrown a green cloak or toga, lined with violet; and on the opposite side is St. Luke, in equally brilliant garments. To describe the whole of the other figures in the picture—in all sixteen—would be tedious; suffice it to say, that they share among them the whole of the six primary and secondary colours of the prismatic spectrum, contrasted and combined pretty much in the manner already described.*

It is impossible for a moment to be blind to the fact that the object of the designer of this window, in which the most portentous event in sacred history is unintentionally converted into a harlequinade, has been, not to present a truthful picture of the Crucifixion, but to seek, in the clothing of the divine and saintly personages that are introduced, a field for the lavish display of the gaudiest colours of the glass-stainers' workshop.

The toleration by a reverent and sober-minded community of so startling, so unnatural, and so untruthful a picture, in so prominent a position as the east window of a parish church, is at first sight almost incredible. And if this were the first window of the kind that had ever been seen, there can be no doubt what its fate would be. The facility, however, with which we become first habituated, then reconciled, and ultimately attached to what is at first sight startling and repugnant to our feelings, is, in matters of art, as well as in matters of religion, one of the most dangerous weaknesses of our nature. Use, ancient example, a certain supposed conventionalism in matters of this kind, and, above all, modern imitation, growing first into a habit, and then into an unreasoning and imperious fashion, have combined to blind us to the manifest vulgarity of this growing fondness for gaudy colour, the effect of which on ordinary minds is best conveyed by the expression of a small tradesman, who, on beholding the sacred scene portrayed in the picture I have above described, when the window was first erected, declared it to be "gorjus!"

It is true that there are numerous incidents of Bible history, in the representation of which this redundancy of strong colour would not be so glaringly offensive as in the instance I have

* This design, which as regards its colours resembles those of the other four or five windows by different artists of high repute in the same church, will be recognised as similar in its main features to hundreds of others representing the same subject in different parts of the country.

referred to; but in by far the greater number of the stained-glass windows of the present day, whatever be the subject treated, whether the personages introduced be Magi or Martyrs, Soldiers or Saints, Kings or Beggars, their dress is the same; the obvious aim of the design being to produce a dazzling effect on the mind of the beholder, by means of large patches of gaudily-coloured stained glass, not produced by the brush of the artist himself, but manufactured and sold to him by the ordinary glass-stainer, at so much per square foot.

It remains to be considered whether, renouncing such extravagance, we may yet be able, in the matter of stained glass, to extract from ancient precedent and modern practice a system of decoration which, without offending our common sense, or our good taste, may yet fitly represent at once the dignity and the purity of English worship, as well as the warmth of devotion inseparable from the true profession of the Christian faith.

There is no doubt that, as I have already remarked, the lavish display of deeply-stained glass in large patches is the most glaring defect of modern work. There is a preliminary objection to the use of these deep colours in large quantities, arising from the positive obstruction to the passage of light. There are portions of the clearstory windows of the noble work of Bishop Hugh in Lincoln Cathedral, the details of which have been thrown into such complete obscurity by the introduction of deeply-coloured glass in the windows of the opposite clearstory, that it is impossible, except at a certain hour of one of those bright summer days that are so rare in this climate, to detect their form and outline, still less to appreciate the grace and vigour of their treatment. In buildings containing lancet windows, nothing short of absolute prohibition of the use of these deep colours will be effectual. But even in buildings where, as is usually the case in the Rectilinear Period, the windows are large and numerous, the chief characteristic of glass,—transparency,—and the object of its use should never be overlooked, nor the material itself denaturalised; and if the sums that are spent over the purchase of so many square feet of deeply-coloured and almost opaque stained glass for a single window or two were employed in the conversion of the whole of the plain windows of a church into stained-glass windows of more transparent character, of less cost, and of becoming and graceful design, the gain would be great, not only to the worshipper and the lover of architecture, but, in my opinion, also to the glass-stainer himself, whose business might thereby be largely and profitably increased.

It is not difficult to foresee, if the present fashion be maintained, and the whole of the windows of a church, in which one or two such memorial windows have been inserted, be filled with stained glass of similar depth of hue, that all traces of the architecture of the building will be lost in a Cymmerian gloom,—unless, indeed, the worship be conducted by gaslight,—and that sooner or later, when the inartistic nature of these gaudy pictures and grotesquely-dressed figures begins to be recognised, a wholesale removal of these opaque transparencies will take place. Nor can there, I think, be any doubt, as the fashion becomes old, and new and better ideas prevail, what the verdict of posterity will be on these art-works of the nineteenth century.

Before, however, we can hope for improvement, we must not only know what to avoid, but what to select and adopt,—a task compared to which the former is an easy one. Without having the presumption to offer myself as a guide in this search, I will venture to suggest a direction in which we may possibly seek with advantage for that assistance of which we are in need,—one, at all events, in which we may work with safety, if not, indeed, with good effect.

Before doing so, however, I will mention a circumstance which has often struck me, and which must have been noticed by others. The treatment of some of the most effective old windows that I know is, in their present state, the result of accident, and not of design. I refer to those which have been formed of fragments of stained glass, collected from many windows, and formed into one. The effect produced is that of mosaic, in which the groundwork, formed of the lighter portions of old glass, mixed with dulled white modern glass, gives a gem-like richness to the smaller portions of deep blue and ruby glass to which they form the setting. Such a window, the agreeable brilliancy of which cannot fail to strike the observer, is to be seen in the clearstory of the apse of Peterborough Cathedral. Many others will, doubtless, occur to those who interest themselves in this question. To this may be added the fact that some of incomparably the finest windows that are left to us of early times are designed precisely on the same principle,—that, namely, of giving effect and apparent value to small portions of richly-coloured glass, occurring in coats of arms and similar devices, by the predominance, as a general ground, of larger portions of amber, grey, light brown, and light green glass. The Church of Etchingham, in Sussex, has remains of stained glass in all its beautiful curvilinear windows, designed, if my memory does not deceive me, on this principle, and coeval with the church.

EDMUND SHARPE.

THE UTILISATION OF SEWAGE.

FROM amongst the papers on this subject, read at the Newcastle Congress of the Social Science Association, we select for publication that by Mr. James Blackburn, of the Aldershott Camp Farm, as it sets forth the result of many years' actual experience there and in Scotland. Mr. Blackburn said the question is, "What is the best method of disposing of sewage and excreta?":—In considering this I will not detain you by dwelling on the old ash-pit system of collection, which necessitated the removal of the same by horse and cart. This plan has been condemned long since on sanitary grounds, and has been found practically to involve a great waste of manure. There are, however, a few plans based on the dry system of collection, of which Moule's earth-closet has attracted the most attention; that also known as Evux's is similar in principle, inasmuch as both use a dry material for absorbing the refuse which is afterwards used as manure; but these do not deal with other waste liquid matters, for which a system of sewers would have to be provided, and their contents treated some way or other at the outfall. I think it may be presumed that water has long been decided on by sanitarians as providing the best means of bearing away all the refuse of our towns, which will have to be taken on to the land in some form or other. Filtration, chemical treatment, and irrigation have been tried with a view of accomplishing this. By filtration the solid and suspended matters are easily separated; the same is done more perfectly by chemical treatment, lime or alum forming the chief ingredients by which precipitation of the suspended matters is brought about. That known as the lime process has been used at Leicester, Tottenham, Aldershott Camp, &c., but has been abandoned. Compounds containing alum have been tried at Northampton, Stroud, and other places; also by the A B C Company at Leamington and Hastings; but it has been found, on careful investigation by the Rivers Commission, that they fail in removing the matters in solution, while the dry manure is of very inferior quality. Irrigation, which implies taking the sewage straight from the outfall to the land, holds out great hopes of success, both as regards utilising the manure and preventing the pollution of our rivers; to do this with the least waste and offensiveness, the sewage should be delivered on to, and absorbed by, the soil in a fresh state before decomposition has commenced. The waste of this manure has been enormous, and must have correspondingly lessened the food-producing power of the country, and it really appears if we could have gone on pouring everything into our rivers with impunity, we should have done so to all eternity; but this evil may now be said to be gradually working its own cure. There is only one outlet for the world's refuse, and that is vegetable production. No filter nor chemical or mechanical contrivance can compete with the soil as a medium for purification; it abstracts not only the suspended matters, but also those in solution, then retaining them until appropriated by the plant, and this cleansing power is ever being renewed by the plants, which are constantly withdrawing the deposited impurities and rebuilding them into vegetable structures. Water, besides having a value of its own, is an economical carrier, and efficient distributer of manure, which in sewage is in a very fine state of division; it insures such a complete admixture with the soil as cannot be arrived at by any other means, and the efficacy of all manure depends to a great extent on its uniform diffusion. The water-supply of towns varies from 50 to 15 gallons per head per day, and in many instances the sewers receive a large addition of subsoil drainage: this is a serious drawback on heavy soils, and also in those cases where pumping has to be resorted to. My agricultural experience in the use of sewage leads me to prefer a supply of 25 gallons a head as the best measure of dilution, bearing in mind that it has to be applied through all seasons of the year; the less storm water that finds its way into the sewers the better, as the matters it may bring down are comparatively worthless. The amount of sewage that can be advantageously used on land depends a good deal on how near it approaches in texture to a sand or a clay, the former through the season requiring more than the latter, but taking an average medium soil, from 60 to 70 head of population per acre per annum may be necessary, so that a farm of from 100 to 120 acres will profitably consume the sewage of a town of 6,000 or 7,000 inhabitants, amounting to 700 or 800 tons a-day; but in sewage farming, more even than in ordinary agriculture, a maximum return from a given area is what should be aimed at, as the great means of reducing the heavy fixed charges, many of which remain constant, irrespective of the produce. The land, unless resting on a porous stratum, will have to be deeply drained, and all irregularities in the surface which may interfere with the conducting of the sewage removed. Deep ploughing and subsoiling are then necessary, moving and aërating the ground to a depth of from 1 ft. 6 in. to 2 ft. The better the quality of the land the less sewage it will require. The difference between good and bad land is never adequately represented by the difference in rent, especially in the case of sewage farming, where the quality of the soil tells not only on one crop in the year, but on four or five in the same time. The sewage at the delivery on the farm must be rid of its solid matter, and as much of that in suspension as possible, as the clearer it can be applied, especially to grass, the better. The solid matter thus separated I have found to be a very poor manure. In this state it may be conveyed over the farm by open or covered main carriers and further distributed on the land from small open channels, which, according to the configuration of the ground, will either be arranged on the catchwater system, or, when very flat, an artificial slope must be obtained by ploughing into ridge and furrow. The cost of levelling and laying out the land will vary from 10*l.* to 20*l.* an acre. Italian rye grass and green crops of all descriptions are the most successful to cultivate; the former is first-rate food for cows, and also for horses, at a later period of its growth when cut and consumed in the house. From fifty to seventy tons may be raised per acre through the season. Rhubarb, onions, French beans, and lettuces thrive luxuriantly under proper treatment. In winter the deeply-ploughed land and grass will take the sewage and retain its manurial matter until the season of growth commences. I think the addition of one or two mineral manures for certain crops will be found economical and productive of good results. Sewage cannot be used advantageously on old grass land, or for growing corn, and the scarcity of green crops in this country renders their cultivation the most remunerative, either as food for man or for conversion into milk, butter, or meat. On a farm of 100 or 120 acres, there would be sixty acres under Italian rye grass, which, with a small amount of extraneous food, will keep 300 cows through the growing season, but in many places it is found profitable to sell the grass on the ground. As to the money value of sewage, chemists have estimated it at 8*s.* 4*d.* per head per annum, but in practice we have not yet approached this; the gross return has not been more than from 4*s.* to 5*s.* a head; but it must be remembered the whole system is completely in its infancy, and further experience will bring with it considerable amendment. As examples of what is being done in England, I may mention the farms at Barking, Croydon, Norwood, Bedford, as furnishing instances, out of some twenty or thirty, of what is being done; also Mr. Hope's farm, near Rumford, which from present appearances promises to be a most important example. My own farm on the Government land at Aldershott is an instance of reclaiming land by sewage, and which is about the most barren soil in Great Britain; fair crops of grass, potatoes, and cabbages are grown on part of it, but its natural poverty makes extraordinary demands on the sewage. Looking at these farms as means of purification, they may

be considered a success, as shown in the analysis of the effluent waters made by the Rivers Commission; their inquiry as to the effect of these farms on the health of a neighbourhood was equally satisfactory. The economic use of sewage is really a national question, bearing very materially on the food-producing power of the country, not merely from the utilising of the sewage itself, but also indirectly by manure produced from the consumption of so large an addition of green food, where its application to the land becomes general. Milk and butter will be produced at one-third less than their present price, and it will be found that when effectually fulfilling the agricultural conditions, it will of necessity accomplish the sanitary object also. Instead of compulsion being needed for its adoption, we shall have active competition.

CHESTER CATHEDRAL AND THE BRITISH ASSOCIATION.

On the 22nd ult., when, the scientific dissipation of the week being over, the members of the British Association were scattered over the places of interest within reach of Liverpool in various excursion parties, a short lecture on the ecclesiastical and architectural history of the cathedral was given by the Dean of Chester, to those who had chosen that city as their rendezvous. An audience, sufficiently large to throng the chapter-house, responded to the dean's invitation to meet him there at noon, when they listened to a discourse necessarily concise (owing to shortness of available time), in which, however, the main divisions of the history of Gothic architecture were broadly defined, and illustrated by reference to a plan of the cathedral, coloured so as to represent the approximate dates of each portion. Plans of Ely, Norwich, and Canterbury Cathedrals were exhibited also in illustration of principles of planning in Gothic cathedrals, especially with regard to the termination of the eastern end, and the various possible application of apsidal chapels in that situation. A good many facts relating to the history of the cathedral, communicated on the occasion, have already been fully noted in our report of Mr. Scott's recent lecture at Chester. The Dean drew special attention to the affinity between Chester and Bangor Cathedrals in many points, and also to the fact that Chester was one of the few cities possessing two cathedrals, or *ci-devant* cathedrals (Rome, Dublin, and London being the only other instances known to him), as the Church of St. John was the original Cathedral of Chester, the present cathedral having only been so constituted, from its original condition of an abbey church, in the reign of Henry VIII. Attention was also requested to the remarkable design of the piers carrying the vault of the vestibule to the chapter-house, which have no impost of any kind, the mouldings of the pier branching straight out to form the vaulting-ribs; and also to the octagonal apse with high-pitched roof, which once formed the eastern termination of the south aisle of the choir, and is now being restored;* a model of the restoration of this portion was exhibited, and compared with a drawing of a similar feature now existing at Norrey, in France. The party subsequently accompanied the dean round some portions of the cathedral, pausing to hear some remarks from Canon Blomfield relative to the monument to Bishop Pearson placed in the cathedral some years back, and which it appears was first suggested (a prophet having "no honour in his own country") by the comment of some Transatlantic visitors, who were surprised to find no monument to so eminent an ecclesiastic in the cathedral where he had formerly held episcopal sway. The Lady Chapel and the "King's School," with its picturesque reading-pulpit, were visited; and on adjourning to the exterior the party congregated at a point under the city wall affording a good view of the south-east portion of the cathedral, where the dean pointed out the illustrations of the various periods of Gothic exhibited in different parts of the structure. Certain inquiries were made by visitors of geological tendencies as to the nature and locality of the stone employed in the new work, and the possibility of its standing better than the original stone, on which latter point answers could be little more than conjectural; sandstone, from the same formation, being, of course, a *sine qud non* in harmonising the new work with the old. The stone now used, being from one of the hardest and closest beds in the district, we must hope for the best. Had the original builders thought of going to the expense of getting some harder stone from a more distant neighbourhood, the present Dean and Chapter would not now have the task of raising such large sums of money to revivify work which was nearly falling to pieces; the moral of which reflection is obvious. At this point the party had to leave the cathedral, to keep appointment with the Mayor, who had invited them to visit the new town-hall, and a premature stop was necessarily put to an inspection which might have been productive of much greater interest, had another hour or two been fortunately available.

The restoration at the cathedral is actively progressing, and the whole of the tower is now recased, and surmounted by new pinnacles, somewhat altering the old well-known outline. When the work in the nave and elsewhere is nearer completion, it may be a more fitting time to go further into detail as to what has been done and discovered, about which there is a good deal of interest to be said. At present we will only pause to rebut the criticism of a literary contemporary, which affirmed recently that "artists" would justly lament the loss of the old picturesque weather-worn tower. Now, we are certainly no advocates for undue or premature restoration; but we must be allowed to observe that when such a structure as a large centre tower has reached that condition in which it may best be likened, to use Dean Howson's own words, to "an old sea-beaten rock," when not only all the design is obliterated, but even the very masonry reduced to a conglomeration of rounded shapeless masses, mere prudence demands either removal or restoration; otherwise "the picturesque" might some day come down on the artists' heads, which even they would perhaps object to. While at Chester, we may say a word as to another piece of interesting restoration now on hand on a smaller scale, and which was also visited during the day by members of the "Association" party. Most visitors to Chester will remember the old red-brick house overlooking the Dee from St. John's churchyard, and noted as the residence, during part of his boyhood, of that erratic genius, Thomas de Quincy, of opium-eating celebrity; the very house, indeed, if we remember rightly, whence he made, one early morning, that strange desperate flight, so graphically described in the "Confessions," from dulness and respectability to Arab life in the London streets. This house is now pulled down, disclosing the old chapter-house of the once Cathedral of St. John, over which the house had been built, and which, in pre-restoration times, was used as a washhouse and laundry by the tenants. A very good late Norman window in the wall above, preserved from the weather for some time past by the modern house built over it, is also uncovered. The chapter-house, a small apartment, about 15 ft. square, has the centre pier so common in Gothic apartments of this class, with vaulting ribs springing from it; but the peculiar feature noticeable in the vestibule of the Cathedral chapter-house, the absence of impost, is repeated here in a still more curious form, for instead of the mouldings of the vaulting ribs running straight through to the ground, the pier here is octagonal, and the vaulting-ribs rise straight from the top of this octagonal pier, their sections butting perpendicularly upon it, without the slightest horizontal moulding of any kind to mask this abrupt transition. At the foot of the pier a well-preserved and delicate base, of Lancet, or perhaps late Transitional period, marks the approximate date of the work. This restoration is being carried out at the cost of the present Marquis of Westminster, under the direction of Mr. Douglas, architect, of Chester.

* It will be remembered that in a former article on the restorations at Chester we raised a question as to the advisability of restoring this portion of the aisle in this form; at all events, so far as the high roof is concerned. The apse is all very well; but the roof having long since disappeared, we cannot but regard it as a mistake to restore what can only be called a freak in design, which can have no archæological interest when merely reproduced by the modern restorer, and which architecturally will certainly appear an excrescence, out of keeping with the general expression of the building, which is emphatically that of repose.

The late Mr. Braithwaite.—The death is announced of Mr. John Braithwaite, civil engineer. From the earliest formation of railways he has been engaged in their construction, both in England and on the Continent. He was seventy-three years of age.

A NOTE IN SOMERSETSHIRE.

Yeovil.—With the foot and mouth disease raging over Somersetshire and most of the western counties, the sanitary state of Yeovil (one of the principal towns) is anything but encouraging. Bad sewerage and drainage, and an insufficiency of good water-supply are not the least of the wants of this town. Take an outline picture of Yeovil at this moment: foul open drains; unremoved nuisances; a fine old Gothic church, *i.e.*, "The Lantern of the West," one of the finest in the county, with mean and filthy surroundings; a dead inspector of nuisances, and a living one voted as not wanted; a local board or town council, in want of money, and yet voting it away; new waterworks hanging fire for several years; civil and ecclesiastical improvement ditto; a town clock, with a dirty face, which it has at last been resolved upon to wash; and (tell it not in Gath) several of the town council with not over-clean tongues. It is to be hoped that a change will be soon discernible, and that it will not be shelved for a twelvemonth, like the recommendation of the improvement committee anent the churchyard-wall buttresses.

Castle Carey.—Some sewerage works have been commenced here, which for many years were badly needed. The estimated cost of the present effort is set down at 1,000*l.*, a sum we should think insufficient to assure anything like a thorough system of sewerage for the town. If the work be done well, the money will be well spent, but half measures do not even establish an equilibrium between disease and health.

A GLIMPSE OF GLASTONBURY.

The readers of the *Builder* have been often told something of saintly Glastonbury and its historic structures and memories,—the old Abbey, St. Michael's Tower, the Abbot's Kitchen, St. Joseph of Arimathea's Chapel, the old Market Cross, and the old Inn. But it is not with these we would deal just now. Glastonbury of to-day has bad drainage and a defective water supply; and these wants are producing obvious results. Scarlatina, diphtheria, and other dirt-produced diseases are breaking out, and are about to keep pace with the cattle plague, now prevalent in the country. Added to this, another no less frightful evil is common in the town—drunkenness and consequent disorder. The public-house system of the town is loose, and on Sundays more than on other days, even during service-time, the "swilling" goes on, and the week's hard earnings of working men are foolishly wasted amid greetings that generally end with growlings and kickings. The inhabitants are partly to blame, as well as the authorities, that such a state of things should exist. If either or both have no respect for themselves, they ought, at least, to have some for the town which they call theirs. This is hardly to be expected, however, on the part of inhabitants who have for years plundered the old piles of their sculptured wealth to deck their own miserable edifices. Let any one walk through Glastonbury to-day, and if he possesses the eye of either a workman or an artist he will perceive pieces of doors, mullions, columns, and other carved and finely-chiselled work stuck here and there in the mean buildings through the town for support or ornament. Cleanliness, it is said, is next to godliness, but it would appear that not a minority of the folk of Glastonbury seem to be leaving it farther and farther every day. It is doubtful whether the apparition of the good St. Michael or St. Joseph of Arimathea would be sufficient to scare it back into a sense of public propriety or common duty.

ABOUT CONWAY CASTLE.

Such of the members of the British Association as visited Conway Castle were guided over it by Mr. H. Vale, the present president of the Liverpool Architectural and Archæological Society. In the banqueting-hall of the castle, he said:—We may consider the reign of King Edward I. the epoch of the grand style of accommodation and magnificence combined in castle architecture. When engaged in the crusades "he surveyed" with satisfaction, as Dallaway observes, "the superior form and strength of the castles in the Levant, in the Holy Land." The introduction of parti-coloured stone in the quoins and dressings of Conway

Castle, as also in Carnarvon, serves to strengthen the idea that we owe these castles to such an Eastern origin. This stronghold is one of those called Edwardian Castles by the archæologists, of which kind there were five in North Wales—namely, Beaumaris, Carnarvon, Caerphilly, Harlech, and Conway. The chief characteristics which distinguish these Edwardian castles from the earlier Norman ones, are the Great Hall of Audience or Ceremony, and the introduction of inferior towers, and overhanging turrets, bartizans or bretises, projecting from towers or angles, and the more frequent herse, or portcullis. The earlier Norman castles were without these portcullises, or only protected by one; but at Beaumaris, Carnarvon, and Harlech, three exist under every gateway, and at Caerphilly they form obstructions at the end of every passage or mural gallery. Conway was protected by one or more portcullises. The audience-hall at Conway was unusually splendid; the ribs of the stone arches of its roof may still be seen. This apartment was 130 ft. long, 30 ft. wide, and 20 ft. high. The ground-plan of this hall conformed to the bend of the outer wall, adapting it to the nature of the site. Beneath the hall was extensive cellarage for ammunition and provisions. The other characteristic of the Edwardian castle, namely, the turrets rising above the larger towers, are well accentuated at Conway, and served as staircases leading to the summits of the larger towers, the latter being 40 ft. in diameter. Another special feature at Conway is the beautiful little groined oratory, or private chapel, in the Queen's Tower, the absence of a fireplace in which apartment has pointed to its appropriation as a chapel. Conway Castle was completed by Edward I., in the year 1284; and H. d'Earlton, who designed Carnarvon Castle, is supposed to have been its architect, although the characteristic features to which I have referred are said to have been copied by Edward from some of the fortresses in the East, whither he had gone in the year 1270 as the leader of the British crusade. In 1282 he subjugated the Welsh under Llewellyn, and proceeded to construct his castles in Wales, the leading features of which generally may be summed up thus:—To render the entrance or gate at once magnificent and impregnable; to secure the garrison, and to enable them to annoy the besiegers; to delude the besiegers to attack the strongest parts, by giving them the appearance of weakness; to put their prisoners, provisions, and implements of war out of the reach of danger; to convey the engines of war to any part of the castle with ease and expedition; to communicate intelligence to any part of the building; to supply the garrison with water; to convey away the smoke and sewage; to provide a commodious and safe habitation for the king and his household; all which conditions will be found to have been met with in the Castle of Conway and the other Edwardian fortresses. . . . . When Richard II. came to Conway, in 1399, the castle was kept by fifteen men-at-arms and six archers. In the Civil Wars it was held by Archbishop Williams for the king, but who, it is said, changed his party, and assisted General Mitton to reduce the place. At the Restoration it was given to the Earl of Conway, who stripped it of its more valuable materials, sending them to Ireland in vessels which are said to have been wrecked, and the whole of the property lost. The mortar of the walls is very hard. Some of the inner surfaces appear to have been plastered with a very tenacious material. The overhanging of the tower near the railway is a good evidence of the cohesive nature of its ingredients. The walls which enclose the military station protected by the castle are a mile and a quarter in circuit, with four gateways and twenty-one small towers, built, as some have said, a bowshot range apart, the whole being encircled by a ditch or fosse. When we take into consideration the skill shown in adapting the ground-plan of the castle to the peculiarity of its site, combined with its gracefulness of outline, we may conclude that the designer was not only a good engineer, but also an architect of no mean ability.

Dispersion of a Museum at Keswick.—Crosthwaite's Museum, which for the last ninety years has afforded much edification and gratification to its numerous visitors of all classes, especially antiquarians and naturalists, has been distributed by Mr. C. P. Hardy, of Carlisle, in upwards of 1,500 lots. There were in it extensive collections of Roman and Saxon antiquities, minerals, skeletons, shells, &c.

NEW SCHOOLS AT COLLYHURST.

The foundation-stone of branch schools, in connexion with the Albert Memorial Church, Collyhurst, was laid on Saturday, by Mr. Robert Gladstone. The site of the new schools, which will be in the Gothic style of architecture, is at the junction of Sanderson-street and Rowbotham-street, and contains 1,200 square yards. The plan of the building comprises mixed school, adjoining class-room, and infants' schoolroom, the former and the latter being merely separated by a framed partition. The buildings externally will be faced with selected brick, white headers, relieved with different colours, and the roof of high pitch, with open framed principals. The mixed school will be surmounted with a lofty belfry. In addition to playgrounds attached to each school, a teacher's residence will be provided, the whole of the plans having been prepared in accordance with the requirements of the Privy Council. Each of the schools and class-rooms will be fitted with the necessary seating, desks, and galleries, affording accommodation for 231 children. The cost, including the inclosure walls and fittings, will be 1,250*l*. Messrs. Wade, Brothers, Miles Platting, are the contractors; and Mr. J. Low, Manchester, is architect for the works.

NEW CORN EXCHANGE, DONCASTER.

On the 22nd ult., the Mayor laid the first stone of the New Corn Exchange and the south-east wing of the Market-house. The market improvements of Doncaster are amongst the most important works which the Corporation have undertaken. Mr. William Watkins, of Lincoln, is the architect. The exchange is 91 ft. 6 in., by 84 ft., inside measurement, and although chiefly intended for a corn exchange, is also designed with a view to large public assemblies. The interior is divided into what may be called nave and aisles, the centre portion or nave being 58 ft. wide, spanned by six semicircular wrought-iron lattice ribs, without cross ties of any description, so that there will be a clear and uninterrupted space from the floor to the apex of the roof inside of about 63 ft. The ribs are connected laterally by ten wrought-iron longitudinal T pieces, placed between two pieces of wood, upon which are fixed the rafters of the roof, which are cut segmental on the underside to follow the lines of the main ribs. Along the entire length of the Exchange is a lantern light, and lower down the roof on each side, also the entire length of the Exchange, are additional skylights, measuring, together with the lantern light, over 50 ft. by the entire length of the room, thus giving a lighting surface of over 4,500 superficial feet for the nave portion alone. The main ribs of the roof are supported by coupled cast-iron columns on each side, having ornamental caps, bases, and bands. These columns are connected laterally again by semicircular cast-iron double ribs, with ornamental soffit plates to connect the ribs. Galleries are provided on three sides of the Exchange, viz.,—Over the settling offices and principal entrance, and over what has been here called the aisles, for the purpose of giving increased accommodation to meet the exigencies of large public assemblies. The gallery fronts are supported by the coupled columns of the nave, and are attached thereto about midway between the caps and bases. Transverse wrought-iron girders connect these columns at the gallery fronts with the side walls; and there are also similar girders connecting the columns longitudinally, by which means great stiffness to the columns is secured. The gallery roofs are formed with semicircular cast-iron ribs spanning the gallery, and supported by the coupled column of the nave at one end, and the side walls at the other. In addition to the top lights, there are windows in every position where they can conveniently be arranged.

The principal entrance to the Exchange is in the centre of the front, the external opening being 15 ft. high by 9 ft. wide, leading into a recessed porch 18 ft. by 8 ft., from which are two large doorways, exactly opposite to the front entrance leading into the Exchange. Right and left of the recessed porch are entrances into small settling offices, from which again are doorways leading into, and both may be used as entrances to, the Exchange, at large public meetings, instead of the front doorways proper, which would entirely prevent a cold draught of air. They may also be used as well as the front doors proper, thus giving additional means of exit. There are side entrances to the Exchange, also through recessed porches or lobbies beneath the side galleries. The front of the Exchange is flanked by angle staircases, having separate external doors leading to the galleries. Thus, there are five separate and distinct external entrances and exits; but there are four doors leading from the large central entrance to the Exchange, so that there will be practically eight doorways which may at any time be used as exits.

The external elevation of the Corn Exchange is in the Classic style, to accord with the present buildings; the Tuscan order being employed for the ground story, surmounted by that of the Doric, the columns and pilasters being properly spaced. The cost of the new works is estimated at about 15,000*l*. Mr. Athron, of Doncaster, is the builder.

RETURNS OF METROPOLITAN DISTRICT SURVEYORS.

The superintending architect, Mr. G. Vulliamy, has published the Fourteenth Report on the Monthly Returns of District Surveyors, under the Metropolitan Building Act.

The total of the gross fees received for the year is 33,246*l*. 19s. 6d., in respect of 19,947 works, of which more than two-thirds were done within the year.

The gross fees received in 31 districts vary from 48*l*. to 479*l*., six being under 200*l*. each, eight under 300*l*., nine under 400*l*., and eight under 500*l*. In 27 districts the incomes vary from 511*l*. to 1,869*l*.

The expenses of district offices are 7,535*l*. The fees remaining due for all arrears are 28,924*l*., but probably mostly of little value. The sums abated or lost are 4,693*l*. Compared with the results of some former years, the present abstract shows a considerable decrease.

	Works.	Fees received.
In 1856	14,654	£19,904 14 11
,, 1857	15,330	21,969 11 4
,, 1858	15,500	21,732 11 2
,, 1859	15,558	22,385 9 2
,, 1860	15,030	22,791 2 3
,, 1861	14,008	21,586 2 8
,, 1862	15,707	25,315 2 3
,, 1863	17,954	29,440 9 9
,, 1864	18,984	31,803 5 2
,, 1865	19,251	32,972 7 9
,, 1866	20,196	34,989 11 4
,, 1867	21,3 3	36,674 6 0
,, 1868	21,915	37,790 13 5
,, 1869	19,947	33,246 19 6

STANMORE.

This house, of which we give an illustration, has recently been erected on the estate of Mr. John Pritchard, near to the picturesque town of Bridgnorth, Shropshire, under the direction of Mr. J. W. Hugall, of Oxford.

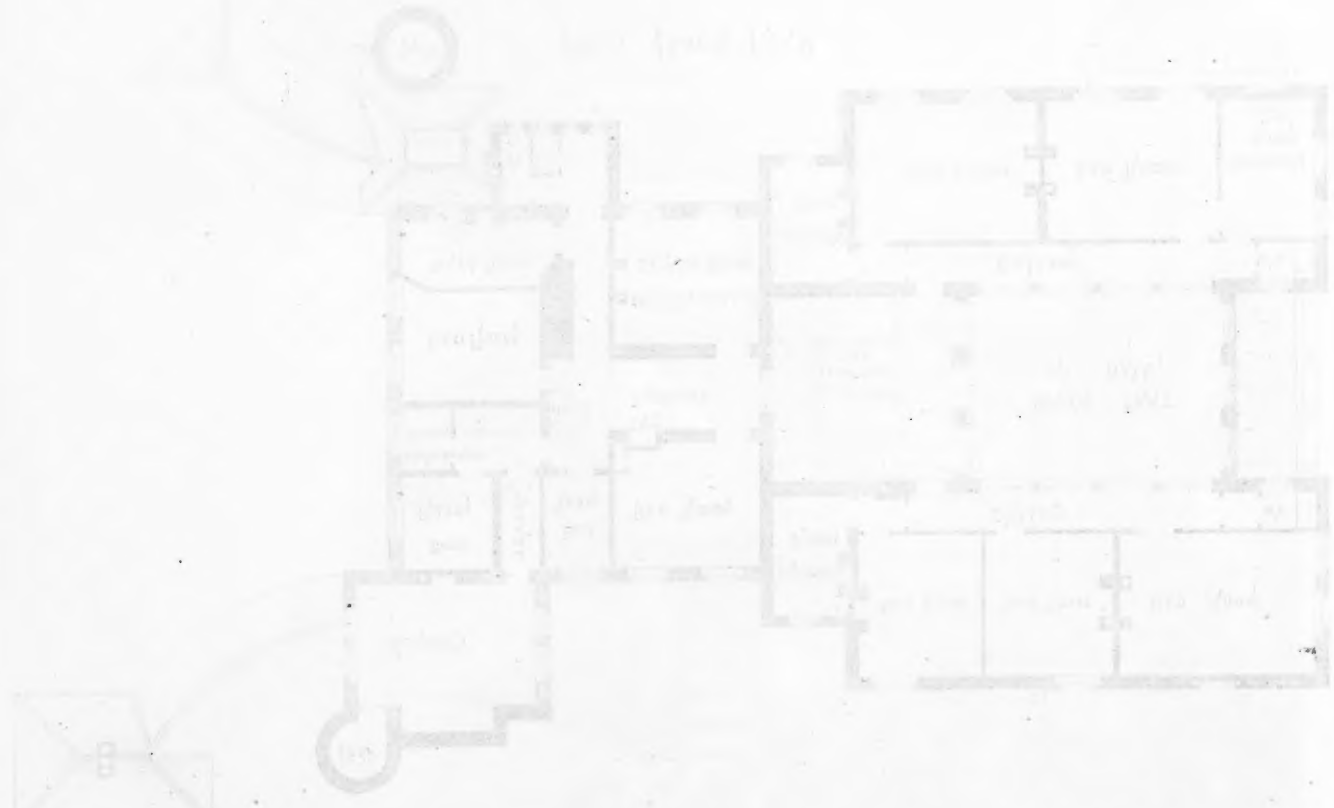
The site selected is very high, and the grounds are beautifully varied with an extensive view across the Severn valley, along which the river is seen to flow at various points.

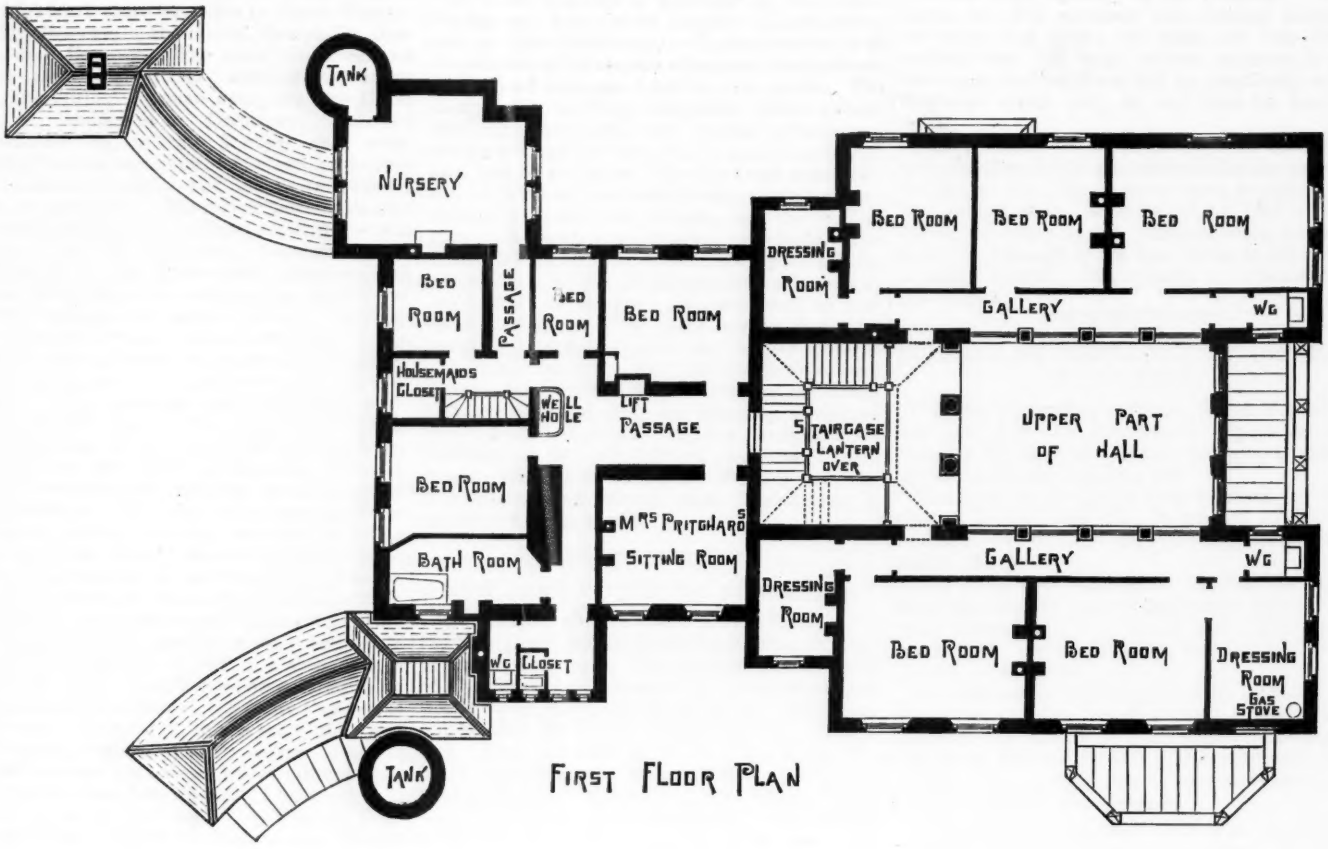
The house is built of pressed red brick from Broseley, with Bath stone dressings, and is covered with red and blue tiles, arranged in lines. The flats are covered with Vieille Montagne zinc, by Fox; and the cresting and finials, of wrought iron, surmounting the roofs, together with the gas-fittings, balustrading, and coil cases, are from the works of Messrs. Thomason & Co., of Birmingham; Messrs. Edwards, of Great Marlborough-street, fitted up the hot-water apparatus, the culinary arrangements, and the laundry; Mr. Coalman, of St. Mary Church, near Torquay, supplied the marble mantel-pieces, slabs, inlays, and columns; Mr. Steinitz laid down the parquetry in the entrance-hall; Messrs. Jackson executed the very elaborate ceilings in their fibrous plaster; and the general contractors, Messrs. Wall & Hook, of Brimscombe, have carried out their various works with care. Water and gas have been laid on from the town of Bridgnorth, a distance of two miles.

The principal and some subsidiary rooms have a line of hot-water pipes passing through them, and coils are placed in the halls, covered by wrought iron and brass cases with marble slabs. A lift for luggage reaches from the basement to the attics. The principal staircase is of oak, and enclosed beneath, to form a serving passage to the dining-room.

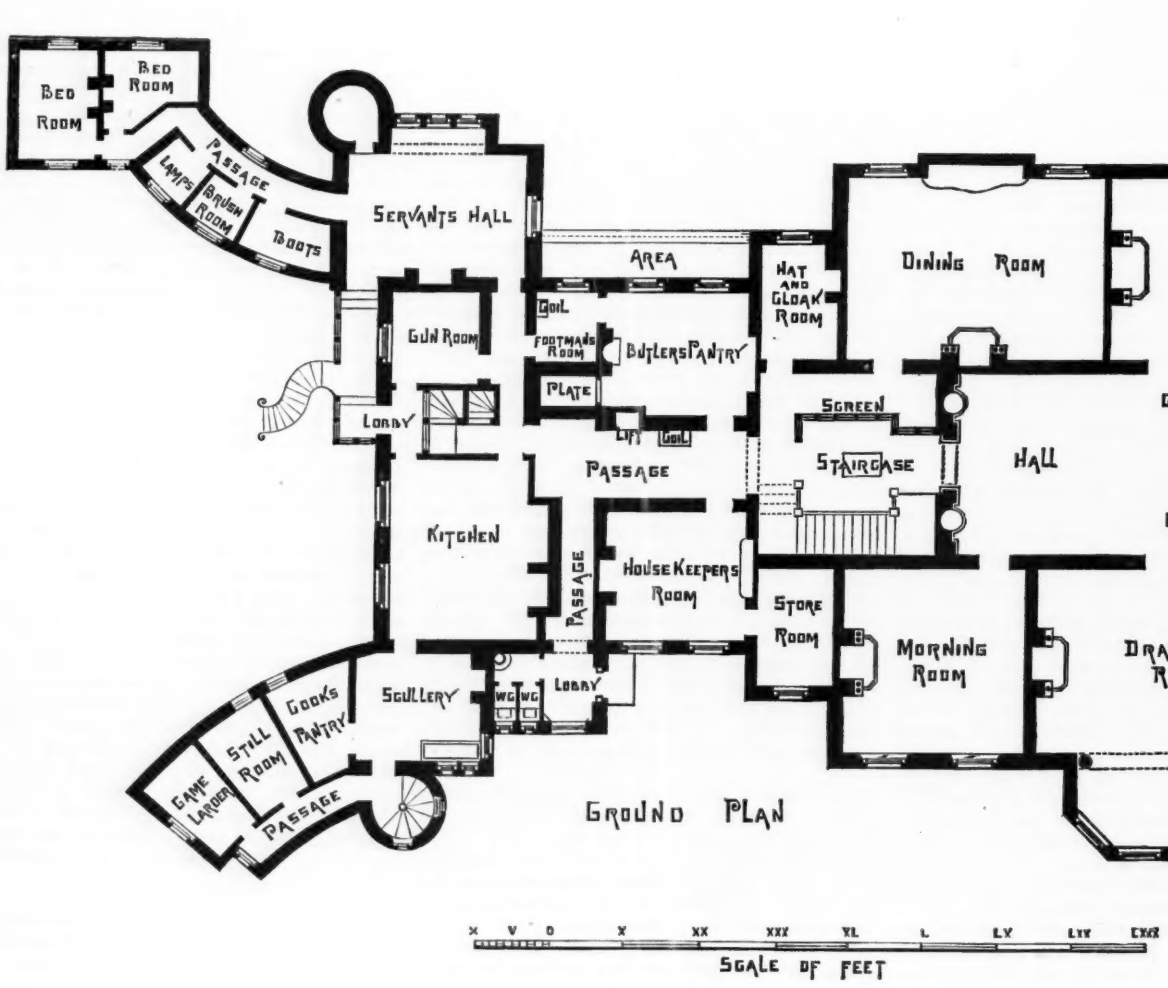
The house being erected on a slope of the ground to the north, advantage has been taken of it to form a basement for laundry, larders, cellarage, and so on.

A considerable quantity of stone carving is executed both externally and internally.



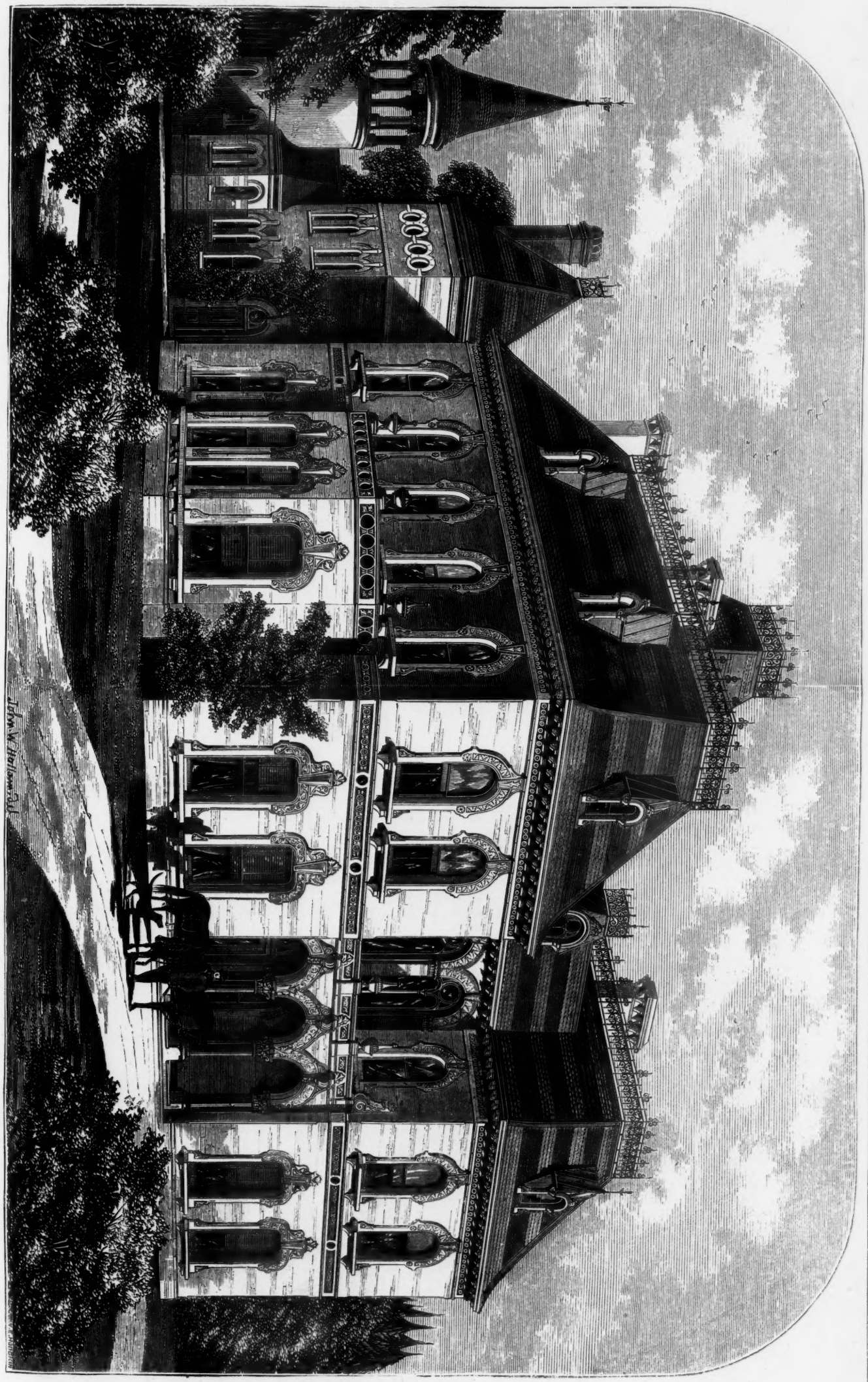


FIRST FLOOR PLAN



GROUND PLAN

STANMORE, SALOP.



STANMORE, NEAR BRIDGNORTH.—Mr. J. W. Hugall, Architect.

JEWISH SYNAGOGUE, EDGWARE-ROAD.

There is a movement amongst the Jews. A few months ago we chronicled the opening of a synagogue, to hold 1,000 people, in Great Portland-street, then one in Chatham, and we now have to mention the consecration of another building of similar size. This last is to be occupied by what we may term a body of Jewish Dissenters.

The new building is erected on leasehold land belonging to the Portman Estate, and held by the trustees for a term of ninety-nine years only.

It is Byzantine in character, and a square on plan, measuring 70 ft. each way, and with a wide gallery along two sides and the western end; the ceiling consisting of a large central dome and four small domes in the angles, and four great arches covering the side spaces. This ceiling is carried by four piers of clustered columns of Devonshire marble, with carved capitals. At the east end of the building is a domed semi-circular recess, or apse, in which is placed the organ and choir; and in the centre of this apse is placed the ark or shrine, the receptacle for the scrolls, constructed of marble. The placing of the choir at the east end of the building, and facing the congregation, is a peculiarity.

A gangway is reserved all along the side walls of the building, so that persons coming in after service has begun may reach their seats without disturbing the mass of the congregation. The occupants of the ground floor, 500 in number, pass out through two 5 ft. wide doorways into a corridor 10 ft. wide, and similar means of egress are given to the 500 occupants of the galleries. Where the occupants of the galleries and ground floor meet, the hall or atrium is 20 ft. wide, and the opening of the great arch and gates in Upper Berkeley-street is of this width.

In this building the decoration of the flat surfaces depends entirely on combinations of simple Geometrical forms, picked out with colour, and on the leaves and flowers introduced in the carving; and here the lily, the pomegranate, olive, fig, and palm, are the types which are conventionalized.

The building has been erected from the designs of Messrs. Davis & Emanuel, by Messrs. George Myers & Sons. The marble work of the ark and choir-screen, reading-desk, and pulpit, is by Messrs. Poole & Sons. The pitch-pine seating is by Mr. W. H. Lascelles; the gasfittings are by Messrs. D. Hulett & Co.; the main portion of the stone carving is by Mr. Williamson; the system of hot-water-pipe heating and ventilation has been carried out by Mr. W. W. Phipson, C.E.; and the stained-glass windows are the production of Mr. A. F. Usher. The organ has been built by Messrs. Gray & Davidson, at a cost of 1,200*l.*; and the total cost of the building will be about 20,000*l.*

THE CONINGSBY ARMS.

Sir,—I trust to your kindness to allow me space for a few words in reply to the letter of your esteemed correspondent, Mr. Gough Nichols, in your last number.

Commenting on my brief description of the Coningsby Arms, as sculptured on the front of the Coningsby Hospital, Mr. Nichols considers that I am wrong in describing the bearings, and pronounces them to be,—not a lattice-fence inclosing "conies," but the arms of Coningsby impaling Fitz-Williams, which latter he describes as "lozengy." As he gives no authority but Dingley's "History from Marble," a mere collection of pen-and-ink sketches, which may or may not be accurate in the details of the drawing, I should like to suggest some reasons why I do not regard that work as conclusive evidence.

1. The bearings seem to me to be *fretty*, and not "lozengy," resembling rather the bearings on the shields of Irby, St. Leger, and others, than the solid-looking lozengy of Fitz-Williams.

2. There is no perceptible line down the centre of the shield, as in all other modern impalements that I remember. I quite agree with Mr. Nichols that the Coningsby coat is not an old one; if it were, I should expect to see the two coats on separate shields side by side, as in the case of the arms of Derby and De Watts, in Chesterfield Church, Derbyshire.

3. I regret to be obliged to dissent from Mr. Nichols's remark that the bearings, as I described them, would be "remarkable indeed." Similar bits of nature, with and without "fences," occur in a number of coats, *e.g.*, those of Lord Lismore, Lambert of London, and the boroughs of Saffron Walden, Andover, Beccles, Berwick, Camelford, Chester, Derby, Hartlepool, Hertford, Huntingdon, and Launceston.

4. The corruption of the name Coningsby into Conisbie is not old, and did not last long. Sir Thomas Coningsby, who built the hospital, spelt his name "Conyngsby" (Townsend's History of Leominster). The present spelling was in use in the time of Pope:—

> "The House impeach him, Coningsby harangues;
> The Court forsakes him, and Sir Balaam hangs."

As to my principal remark, that the coat is an example of canting and punning heraldry, you have sufficiently vindicated me, leaving me nothing to add but that I am, &c.,

Flavell Edmunds.

WESTERN SYNAGOGUE, ST. JAMES'S, LONDON.

The Western Synagogue, in St. Alban's-place, Charles-street, was re-opened on the 18th ult. for service. It has been repaired and decorated in quiet good taste, under the direction of Mr. J. D. Hayton, architect.

This synagogue was built in the year 1828. The congregation, which was established A.M. 5534 (1774), worshipped previously in premises situated in Denmark-court, Strand.

The whole of the flooring, as well as that to the gallery, is covered with kamptulicon of extra thickness by Messrs. Gough & Son.

Messrs. Buchan & Son, of Southampton, were the contractors for the repairs, painting, and decorations, and they have very creditably and satisfactorily carried out their contract. Messrs. Hulett & Co. have executed the sunlights and gasworks.

The expense of the whole of the works has been defrayed by Mr. Moss Isaacs.

THE INFLUENCE OF BAD FOREMEN.

Sir,—I have read your recent articles upon the technical education of the artizan with attention; but, while concurring in your remarks, it has struck me that in numbers of instances, many of which have come under my notice, a technical education is of very little use to the operative. This is owing to the working system now in use in the building trade. In nine out of every ten establishments, one man—the foreman—has supreme control, and can employ or discharge whomsoever he thinks fit. In not a few instances have I seen the educated workman dismissed for simply knowing too much; which is quoting a favourite saying. The moment it is noticed by interested officials that this or that man can strike out his own work from a rough sketch or regular drawing, that moment he is looked upon as one to be guarded against, and at the first opportunity, if circumstances permit, gets his "back day." Much has been said from time to time about the "proper understanding" which ought to exist between masters and men, but this will never be until the masters trust their men as a body more than they do at present. They always seem to have a proper understanding with their respective foremen, twenty per cent. of whom add to their income by a system of trafficking, which demoralises the men while it takes considerably from the employers' profits. By the present working system, a foreman who has supreme control over fifty or sixty men can add to his salary by receiving weekly pay from inferior hands, who are always to be found ready to tender the bribe in return for being kept in constant work. Under such a system the educated artizan, who is generally a spirited man who would not stoop to such a practice, is sure to be the sufferer.

Besides the weekly pay, which is a common practice, there is another method by which the foreman, or deputy foreman, in charge of a job, and who generally keeps the time-book, can augment his pay. There are in a firm, say twenty *old hands*, favourites, who can be consequently trusted by officials inclined to do a bit of "jobbing." If these constant men happen to lose any time, suppose two hours a week, on an average, their full time is returned by the jobbers to the pay-clerk, and the two hours' pay, which was never worked for, handed to the foreman or deputy, as the price of his favour.

What leaves so many married men always in a struggling position? Bribing the foreman, or "boozing" his deputy. Why are so many operatives drunkards? Because the deputy or confidential man likes his beer, and looks to the men under him for a treat or treats as the price of his favour. Between bribing the foreman, and supplying beer to his deputy, the man who has a wife and family can save nothing for the rainy day. If one of these men knew an operative to be technically educated, he would stand a bad chance of keeping his place, for reasons which are very obvious.

The writer who calls for the technical education of workmen for our workshops also suggests that masters should be taught in like manner. If they were, and showed a more friendly feeling and inquiring spirit amongst their men, there would be better results from the money earned. A master once said to me, "You are one of the firm, and ought to take as great an interest in it as I do myself." I felt this was a good saying, if there were no too-much-trusted officials between us.

A Journeyman Joiner.

MAN THE BOATS.

Sir,—The following remarks will perhaps render my last letter more fully understood.

In the system proposed it would be necessary to hoist the boat from the deck, and when hoisted to remove the falls into the boat ready for lowering, and in order to do this there must be some means to suspend the boat for the time independently of the falls.

To do this it will be necessary to have an additional sheave on the axle, that the sheaves of the upper block (being, as before stated, part of the davit) turn.

Then to hoist the boat, heave on the falls, and when high enough, the man in the boat will make fast to rings to receive these two ropes, each running over the additional sheaves in the davit at its end of the boat; these ropes will then be made fast on board, and the boat will be suspended for the time without the falls, and which can be coiled into the boat ready for lowering; but in order to prevent the chance of accident through the ropes suspending the boat not being properly made fast, or cast off too soon, it would be well to have an overhanded, or Turk's head knot made on it, to prevent it from running out through the sheave-hole, and thus letting the boat down.

Then, in lowering the boat, it will be necessary for the man in it to cast off the ropes it is suspended by, the falls having been previously placed in the tube described in my last (and which must be strong enough to prevent its being torn apart or broken), and if necessary temporarily lashed together beneath the tube. If so, he will then cast off such lashings and pay out the falls, and lastly, cast off the tackling when the boat has taken the water. The boat will then of course have a painter to prevent her from being carried away by the current before her crew can jump into her. When the falls shall have been cast off, it will be necessary to take the end of each one on board preparatory to rehoisting. The lower blocks will, in the mean time, if rough weather, be likely to dash with great violence against the hull, and should therefore be of suitable material and of the best possible shape to prevent shivering; for this purpose it would be well to have attached small fenders so placed as not to impede the working.

Concerning the tube for paying out the falls when in the boat the following method (if not already invented, and which I am not aware that it is) would perhaps be an improvement.

Suppose a piece of, say 2-in. elm plank, 2 ft. long and 1 ft. wide, to have four sheaves, each ¼ in. thicker than the diameter of the fall, and two of these to be placed on axles running through the elm plank, and near one end, and so that these sheaves shall have the grooves in their circumference rather more distant apart than twice the diameter of the falls, so that they can both be rove through on these sheaves without chafing each other; then, if the other two sheaves be similarly placed at the other end of the elm plank, the falls can be continued and rove out at this last-named end of the elm plank, and if the sheave axles were left long enough, we could put on this side a corresponding piece of elm plank, and we should now have a block with the falls rove through.

The writer goes further into description, but it needs diagrams to make it of any value.

* * * * *

If, underneath, a thwart, at the middle of the boat's length and on one side of the keel (under-

neath the boat), were to be formed of, say 1 ft. 6 in. by 1 ft., and rising in the bottom of the boat about 8 in., a box, and this to have, to rise from its centre, a pipe having a water-tight piston (with a collar at top to prevent its dropping through), and to the bottom of the piston to be secured a water-tight box of wood or leather (or perhaps of cork), to be very light and strong, and to rise up into and fill the hollow box previously formed in the boat to receive it (and which would be better made with a draught of 1 in. in 8 in., to allow the water to pass): then, this being very buoyant, its lifting power in the water would be 50 lb. or 60 lb.

Now, suppose to the end of the piston there be fixed a small chain on either side to lift a very light but strong lever running along the bottom of the boat at each end, and its end to be turned up at right angles (and to work on a pivot where it turns), and the part turned up to be connected with the rule joint of the bolt. This lever would, perhaps, be best made of exceedingly light ⊥ iron, and it would consist, its long arm of (say) 6 ft., and its return arm (which should have an angle brace) of, perhaps, 1 ft. 6 in.; then the power of the short arm would be four times the power of the long arm.

Now, if we were to balance the long arm by continuing its end, and putting a weight thereto (like the minute-hand of a church clock), we should have available half the lifting power of the piston for each long arm, say that to be 28 lb.; then that would give four times that, or a power of 1 cwt., to force against the bolt at the rule joint (against the 7 lb. spring), and bend it so as to liberate the iron eye or ring of the strap of lower block.

By this plan both the falls must be cast off the instant the boat takes the water at its middle, and it would thus be almost, if not utterly impossible for it to capsize through any fault in the falls, and the lower block could not twist while the bolt passed through its iron eye in its strap; but it would turn on the bolt as a pivot, and accommodate itself to the varying inclinations of the falls in lowering, and it would have the guide-rope (mentioned in my last letter) attached to it, sliding by its ring at its other end, up and down the wire ropes, and which would, of course, be cast off with it.

To rehoist the boat, a man must, by his weight, force down the piston, and there must be a bolt or chain or something to keep it down while he attaches the tackle, and till the boat is quite clear of the water.* Henry Ambrose.

ARCHÆOLOGICAL SOCIETIES.

Wiltshire.—The annual three days' meeting of the Wiltshire Archæological and Natural History Society has been held; with Wilton,—an ancient and interesting town which once ranked first in the county,—as the head-quarters, and Salisbury and some of the most attractive parts of South Wilts as points for excursions. Mr. Charles Penruddocke, of Compton Park, presided. As usual, the society was received with great hospitality; and the programme was unanimously voted a good mixture of business and pleasure. One noteworthy feature was the number of ladies who honoured the society with their presence. General regret was expressed at the affliction cast upon Lady Herbert and the Pembroke family by the news of the loss of H.M.S. *Captain*, in which a son of the house was serving as midshipman; and the intended visit to Wilton House was of course put off in consequence. Other than that there was no drawback to the satisfaction and enjoyment of the numerous visitors. The inhabitants of Wilton were represented in the welcome by the mayor, as well as by two of the hon. local secretaries, Mr. H. J. F. Swayne and Mr. J. E. Nightingale. The scientific and social congress, with its round of addresses, papers, *conversazioni*, excursions, luncheons, dinners, &c., was attended by a large and influential company; although the presence of two or three of the expected *savants* was unobtainable, through the meeting of the British Association being in progress. Among the papers read were:—The Rev. D. Oliver, on Wilton Church; Mr. J. E. Nightingale, on Objects of Interest in the Fonthill Excursion; Rev. G. S. Masters, on Roman Remains recently found at Holbury, near Dean; Rev. J. Heale, on the History of Poyntington; Mr. E. T. Stevens, on the Stone Period; Rev. D. Oliver, on the Stone Avenues of Carnac. The annual dinner was held at the Pembroke Arms Hotel, the mayor of Wilton in the chair. The second day of the meeting was the grand excursion-day, when a distance of upwards of forty miles was traversed along the interesting valley of the Nadder. Starting from Salisbury at nine o'clock, and Wilton at half-past nine, the excursionists numbered not far short of 200 persons, and occupied about thirty carriages of various descriptions, some of which had been hired from Southampton for the purpose. With Mr. E. T. Stevens as pioneer and manager of the excursion, the lengthy and somewhat novel procession was kept together in excellent order. Next day the excursionists, about 100, went to Longford Castle.

An Archæological Society for Dorset.—Under this title the editor of the *Dorset Chronicle* proposes the establishment of a new society.

* *Erratum.*—In my last, for "double tape" read "double tube."

AID TO THE ARTS IN FRANCE.

In a number of the *Revue Générale de l'Architecture*, conducted by M. Daly, just received, it appears that Madame la Comtesse Decaen has left to the Academy of Fine Arts, in Paris, the munificent legacy of 120,000*l.*, for the formation of a museum, to be named the Decaen Museum; as also to provide recompenses to the students of the Academy, and to give for three years to those students who have returned from Rome a pension of 160*l.* per annum to the painters and sculptors, and to architects 120*l.* The cause of this difference does not appear; but possibly it may be to cover the expense of models, &c., so essential to the former, but not required by architects. When France gets out of her present unfortunate position, which will, we most sincerely hope, soon be the case, this noble bequest will doubtless produce good results.

THE CHAIRMANSHIP OF THE METROPOLITAN BOARD OF WORKS.

At the first court of the Metropolitan Board of Works since the recess there was a very large attendance of members. Mr. Alderman Gibbons was called to the chair.

Mr. Pollard, the clerk, read a notice referring to the death of Sir John Thwaites, and Mr. Runtz adverted to the sad loss the Board had sustained: the condolences of the Board were agreed to be conveyed to Lady Thwaites.

The letter of the Home Secretary, suggesting that the appointment of a chairman should be deferred or made conditionally, having been read, Mr. Newton moved that the whole matter connected with the salary, duties, and so on, of the chairman, together with the letter of the Home Secretary, should be referred to a committee. The letter, he considered, was an interference with the duties of the Board, and he thought that a conference with Mr. Bruce on the subject should be sought.

The motion was carried unanimously, the committee to consist of all the members of the Board.

ARCHITECTURAL VAGARIES IN EDINBURGH.

Sir,—While the romantic site of Edinburgh and the towering irregular outline of our lofty buildings require so little effort to give the pleasing effect so much admired, we still continue to waste many thousands of pounds, displaying false taste in obscure localities, where plain buildings with more light and more air are only wanted. The tenants are saddled with costly stone and lime excrescences, copies of some baronial reminiscences which have no historic worth, far less present or future utility, to any one, except where sentiment prevails over principle. Allan Ramsay, addressing civic authority here a century ago, gives a hint as to a feeling of principle now wanted in our city improvements, when he says:—

> "Our reason and advantage call
> Us to preserve what we esteem,
> And each should contribute, tho' small,
> Like silver rivulets that fall
> In one, and make a spreading stream,
> So should a city all her care unite,
> T' engage with entertainment of delight."

Now, here we are, sober, sentimental Scotchmen of the period, striving with the imitative ability of the Chinese tailor (who so tastefully copied the patches on the old pattern into the new breeches), reproducing the stuck-to devices of the old builders into new tenements, with damaging effect to the comfort and means of the workmen's families and shopmen who require accommodation.

Such is the distorted taste of the period that even an effort has been made to mar the present perfect symmetry of Charlotte-square, requiring the strong arm of the law to preserve the true Classic taste of our fathers. This noble square is well worthy of being chosen as the site of the grand Scottish Memorial to the late Prince Consort, but, such is the questionable state of public taste, it is more than likely to share the fate of the Ross Fountain,—this, the finest work of art we have of the kind, having been placed in the worst possible position under the cold shadow of the Castle rock,—on the lowest ground of Princes-street-gardens,—where in the same bleak locality a winter garden is planned out to be placed, the design for which being exhibited as art.

Many visitors to Edinburgh think from the costly construction of buildings here, that too many fantastic notions in stone and lime are built for posterity to alter. We experience trouble now by the cost and dust of daily alterations on the massive works of past generations. The Caledonian Railway Company have spent many thousands of pounds in clearing away substantial palatial buildings, which after all are only replaced by a wooden station, which a Yankee visitor said has a useful homely feeling about it. Near the same timber erection, a further clearance of some few thousand pounds' worth of princely dwellings has been lately proposed as a suitable site, at the west end of Princes-street, for the Prince Consort memorial; while alongside that street there are at least two good sites in the garden walk opposite Frederick-street and Castle-street, and best of all a most appropriate site having the vista of Princes-street towards the east, if placed upon the rocks below the Nelson tower. We have in the same view that most symbolic of Scotland's memorials, the unfinished national monument to her brave sons who fought and fell during the wars of the first Napoleon striving to obtain the now waste-paper treaties of the last generation. The new and finished national memorial to "the silent father of our kings to be," would tend, if placed near those solemn columns, to illustrate the triumphs of peace over war? *Sic transit gloria mundi.*

It is proposed to have a statue of Chalmers in marble. As we do not keep such memorials very clean, it would be better that it should be of bronze, and made to match the statues of George IV. and Pitt by Chantrey, as there is yet another site in our noble George-street requiring such a statue. The Chalmers memorial should be placed at the intersection of Castle-street, and we should then have a statue of the regal, lay, and cleric representative men of last generation adorning our finest thoroughfare. As yet in the city of Knox there is no monument to our great reformer, statesman, and divine.

Whatever sentiment or principle guides us in the erection of memorials to our worthies, we cannot boast of being Israelites indeed. We do not garnish the memorials of the past, but, neglecting historic worth, the sectional and sectairn Scotchman of the period needs the genial heart and gentle hand of an "Old Mortality" to remove the weather-stains from freestone and marble memorials of our lay and cleric worthies.

J. K.

MORTUARY CHAPEL, LIVERPOOL.

About five years ago Dr. Trench, the Liverpool medical officer of health, commenced a subscription for the purpose of raising a fund for the erection of a mortuary chapel, to which, with the co-operation of the Roman Catholic clergy and by the attraction of a religious ordinance, the poor Irish inhabitants might be induced to remove their dead between the periods of decease and burial, so putting an end to "wakes" of the dead in their own dwellings. The work, however, was undertaken by a single individual, and the site fixed upon was on the north side of Collingwood-street. The architect chosen was Mr. Henry Sumners, of the firm of Culshaw & Sumners, of Liverpool, who was the designer of the structure; and the builder, Mr. William Tomkinson. The foundation-stone was laid on December 11th, 1866, by Dr. Goss, Roman Catholic bishop. After a considerable portion of the building had been erected, adverse circumstances affecting the fortunes of the donor arrested the progress of the work, and the building remained at a stand until some two years ago, when, funds having been obtained for that

purpose, it was re-proceeded with, and it is now near completion. It forms an architectural feature of the neighbourhood. The style is Gothic of the Decorative period; and the exterior of the entire edifice is executed in Yorkshire stone shoddies, with Grinshill and Longridge stone as dressings. The object in the construction of the building was to assimilate the edifice as much as possible to an ordinary church, and to remove, in an equal degree, the appearance of a mere morgue or dead-house.

The mortuary consists of a nave, 37 ft. by 28 ft., and it is capable of containing, without crowding, twenty-one coffins; it has a distinct entrance from the street, the opposite end of the building to which is semi-octagonal. The sides and end of the mortuary are divided into seven equal bays, the arches of which are supported by eight polished granite shafts, resting upon a Yorkshire stone plinth or basement, the bays being again subdivided by smaller granite shafts supporting intervening arches and tracery. Between the shafts is plate glass, completely filling up the openings of arches and tracery, forming a completely sealed division from the aisles; and thus, whilst a view of the interior of the mortuary is afforded, there is a perfect absence in the building without of any taint or smell. The aisles, which are 19 ft. wide, entirely surround the mortuary, and form the chapel portion of the building, which, to correspond with the mortuary, is also semi-octagonal, except the centre, which is projected outwards to form the chancel, which, together with the aisles, is lighted by three traceried windows, filled with stained glass. The seats are so planned that the whole of the audience face the altar. To the chapel portion of the building there are separate entrances at the side. Above the arches of the mortuary there is ashlar work, and the roof is formed of moulded and curved principals springing from stone corbels, filled in between by boarding, as also is the roof of the aisles. The walls of the aisles are in brickwork, in coloured bands, no plaster being used throughout. The floor of the mortuary is 2 ft. 6 in. lower than that of the aisles, and for the convenience of access, nearly level with the street. The ventilation is by one very large Watson syphon ventilator on the roof; and the chapel is also ventilated and warmed. A sacristy and other conveniences are provided for, being approached from the chancel.

The building, says our authority, the local *Journal*, will be ready for the ceremony of opening in a few weeks. It is in a sufficiently advanced state to indicate all that was intended by its projector and architect.

THE ROYAL ALBERT ASYLUM FOR IDIOTS.

The centre and south wing of the Idiot Asylum for the Northern Counties of Lancaster are now so far completed as to be nearly ready for the reception of patients. The building, which stands on a commanding site about three-quarters of a mile south of the town, near the Lancaster and Preston Railway, is in a modified Gothic style of architecture. It is to consist of a centre, with lofty entrance tower, and two wings. The tower and south wing are already completed. The asylum stands in the midst of sixty-seven acres of land, which are in process of being suitably laid out. The exterior walls are of a light-coloured freestone. The general arrangement of the plan is very simple, and something in the form of the letter E, the main front facing westward being represented by the thick upright stroke, with two wings at the north and south extremities projecting 60 ft. from the front of the main building, and running back 185 ft., and a central projection of 40 ft. extending in an easterly direction to a distance of 250 ft. The greatest length from north to south is 472 ft., and from east to west 340 ft., the total area covered being 5,160 square yards. The principal entrance is in the centre of the main front, and opens into the large entrance-hall and staircase leading to the board-room and the secretary's office. To the right is the residence of the superintendent; to the left the matron's room, waiting-room, &c. Facing the entrance is the large dining-hall, 73 ft. by 35 ft., capable of accommodating 300 inmates. Immediately behind the dining-hall is the kitchen wing, containing a large kitchen, 43 ft. by 35 ft., scullery, pantries, servants' hall, &c. Beneath are the bakeries, store-rooms, &c., communicating with the kitchen by a hoist. To the east of the kitchen wing, at a distance of 40 ft., and connected by a corridor, is the workshop block, 140 ft. by 66 ft., containing workshops for the carpenters, painters, shoemakers, &c., engine-house and smithy, over which are the wash-houses, laundry, &c. Immediately adjoining the entrance hall, and branching off to the right and left, are the principal corridors, 9 ft. wide and 130 ft. long, communicating with the various apartments and with the corridors of the wings. The rooms on the west side of the corridor, both on the right and left, are reserved as day-rooms for the first-class patients. Those on the east side are to be occupied by the schoolmaster, schoolmistress, and attendants. In the north and south wings are the school-rooms, day-rooms, baths, and lavatories. The basement floor is mostly above ground, owing to the natural slope of the ground, and is chiefly appropriated for general storage of provisions, ironmongery, coals, drapery and linen, larders and dairies, tailors' and upholsterers' shops, &c. The principal entrance to the basement story is at the east end of the central block, where goods and stores are delivered and deposited for use. In the south wing are work-rooms and large play-rooms for the use of the inmates in wet weather. The first floor is generally appropriated as dormitories, with the board-room and offices over the principal entrance. The second floor is similarly appropriated. The work, now nearly completed, comprises about two-thirds of the whole contract, and includes all the various offices and apartments described, with the exception of the north wing and the range of buildings connecting it with the central block. The south wing it is intended to appropriate for boys, and the north wing (now in course of erection) for girls. The building, when finished, will accommodate 500 inmates, exclusive of the staff of officers, and the total cost will not be less than 350,000*l*.

STEAM BOILER EXPLOSIONS.

Sir,—By the programme of the British Association in Liverpool, Mechanical Section, only one paper was, I believe, to be read, viz., "Steam Boiler Explosions." Is it indifference, or are all our wants supplied? Are there no railway accidents to see to? no preventive required for ships turning topsy-turvy? Are explosions in gunpowder mills and coal-mines of no moment? Are,sir,—but your space in the *Builder* is valuable: I will at once explain my self-acting valve of a large bore, the present safety-valve to remain, though oft the reverse of safe, through inattention or tampering.

I think I can best illustrate my improvement by relating a scene in the engine-room of H.M.S. *Wasp*. The boilers were old and much worn, full power seldom attempted. On one occasion the engineer drew attention to the upheaving of the top plates. A little more steam would have sent us all to Davy Jones's locker. One daring fireman danced on the plates.

The lever of my large gush valve being secured down by a wire drawn across the edge of a steel clip or shears: undue expansion would instantly sever the wire, all the steam would then escape up the chimney. An iron plate on the top, made on purpose to bulge, would make assurance doubly sure. R. T.

P.S. Many mechanics would gladly attend an *all-night* discussion. If the British Association would permit them to take part, explain, read papers, show models: they would esteem it an event for a lifetime.

SASHES AND FRAMES.

Sir,—Having noticed the correspondence in your journal of this and last week headed "Sashes," in which objections are urged against them as being continually subject to the breakage of cords, detaching of weights, &c., which renders them comparatively useless, we beg to call your attention to the patent arrangement of which we are the sole manufacturers, which dispenses with the use of lines, pulleys, and weights, and which allows the sashes to revolve, so that the outside of the sash can be turned towards the inside of the room, for the purposes of glazing and cleaning, without removal from the frames or disconnecting beads, &c., which obviates the very objectionable practice of using external stages. This latter qualification cannot be too highly valued.

Archibald Smith & Co.

AYLESBURY SURVEY, AND SURVEYS GENERALLY.

Sir,—In asking you to allow us through your columns to give expression to our astonishment at the acceptance of a Tender of 187*l*. 10s., we do so on directly opposite grounds to those of your other correspondents, viz., not because a lower tender was not accepted, but that one so low should be.

The work to be done, as per memorandum of instructions sent to the competitors by the Town Clerk, is as follows:—

1. Survey and map of the town, comprising about 200 acres and 1,400 houses, scale one chain to the inch: to be completed by the 1st of November.

2. Survey and map of the district (including a reduction of the town portion), in all about 3,200 acres; scale, three chains to the inch: to be completed by the 1st of February.

3. Separate plot of 200 acres of the country portion (required for irrigation purposes) by 1st of November.

4. Complete schedule of the owners, lessees, and occupiers throughout, with reference numbers on the maps (including, of course, the fair copy of same).

5. Superficial quantity of every field and property throughout, except in the town, where small inclosures may be combined in groups not exceeding 10 poles (includes copying same in schedule or on the maps).

To this add, unless the surveyor reside in Aylesbury, travelling expenses for the staff employed, extra expenses attending their residence, office, &c., with paper for the three maps, and incidental expenses.

We are unable to understand how this can be done with any degree of accuracy for any of those sums quoted in the letters which have appeared, and, knowing nothing whatever of the fortunate (?) competitor, we can only hope that he has not been misled in taking the work at such a figure, and that he will complete it accurately by the times named, so as to obtain a fair profit for the five months' work for the necessary staff; but we cannot conceive the possibility of his doing this unless he succeeds in obtaining the assistance of properly-qualified surveyors at about the rate of ordinary artizans, and we are led to doubt the satisfactory issue so far as the Board are concerned, not, however, unfortunately, so much from the apparent absurdity of such an expectation, as from the opportunities we have had of seeing the result of other surveys made at low prices for local Boards, &c.

A short time since a map of a county town was put into our hands, and on taking actual measurements in the streets, we found that they differed *generally* 8 or 10 per cent. from those appearing on the map. A main road, shown for at least 10 chains, was about 15 degrees out of its true direction, while one of the principal churches had skew angles at all the corners, as apparently the only way of fitting it into the strange shape which the churchyard had (erroneously) assumed.

We could mention the names of other places, some of considerable importance, where the town maps are, for purposes of accuracy and precision, not worth the paper on which they are drawn.

We desire to call attention to this fact, because it is one which does not get generally known. A corporation which, from motives of parsimony, has made a bad bargain in this respect, does not proclaim it, even if aware of it; but a map, perhaps nicely coloured and mounted, hangs in the Town-hall or Board-room, looking, to ordinary spectators, very satisfactory, while a few members of the Board, the town surveyor, and any unfortunate professional men who would be glad, if they could, to make use of it, are alone aware of its worthlessness for nearly every purpose for which it was made.

Hence, if the ratepayers of Aylesbury have cause (as suggested by your correspondent "Fair Play") to regret the acceptance of the present tender, we should base such an anticipation on different grounds from those suggested in his letter; and though the well-known experience of the firm of Messrs. B. Danton would not lead to a belief that they would accept a tender impossible to lead to a satisfactory conclusion in strict accordance with the instructions given the competitors, we cannot but think that they are mistaken in the contrary idea.

We repeat that we know nothing of the gentleman who has taken the contract, but fear he will either find he has undervalued the work, or will have to "cut his coat according to his cloth," in which case either he or the ratepayers must suffer.

We should state, in opposition to the letter of "A Surveyor," that we were distinctly told the lowest tender would not necessarily be accepted, but one according with an estimate prepared by Mr. Denton.

Two of the Competitors.

LAYING PAVEMENTS.

Sir,—Will one of your numerous readers kindly inform me what is the most approved and cheapest method for laying tar paving or asphalte on public thoroughfares?

L. M. F.

THE SEWERS IN REGENT-STREET.

Sir,—Surely something ought to be done to the Regent-street sewers. I have noticed for the last three weeks a most horrible stench rising from the gullies, more especially from those at the corner of Vigo-street.

I think your able sanitary correspondent "Pro" is in more requisition here than in the provinces; for it is a shame that one of our finest streets should become intolerable from faulty drainage. W. H. A.

CASES UNDER THE METROPOLITAN BUILDING ACT.

FEE FOR ARCHES.

At Guildhall, Mr. Wigmore, of Bradfield House, Walham-green, builder, was summoned before Sir Robert W. Carden for 25*l*. 10s. for surveyors' fees for the building of certain arches under the public highway in Newgate Market. Mr. Clarke appeared for the district surveyor, and another solicitor for the defendant.

Mr. Edwin Power said that he was the surveyor for the district which included old Newgate Market. On the 8th of June he received a notice from the defendant that he intended to build fifty-two arches under a public highway in old Newgate Market. He went there on the 12th of June, and measured and surveyed them. About ten or twelve days afterwards he found one or two arches complete. By the 20th of July fifty-one arches were complete, and in the interim he went fifteen or sixteen times to survey them as they were in progress, and had to measure them from time to time to see that the walls were of the proper thickness, the arches of the proper width, and the span constructed according to Act of Parliament. The arches varied in size, and he had to examine every one of them, and measure them. They were not arches attached to houses, but were built on a vacant piece of ground under what was intended to be a public way, and adjoining which houses were intended to be built. Each arch had a separate entrance and party-walls.

Cross-examined.—Each vault or arch was a separate structure, and one arch was turned at a time. He had claimed his fees (25*l*. 10s.), and the defendant had refused to pay them.

For the plaintiff it was contended that each arch was a

separate structure, and entitled him to a fee of 10s. on each; while, for the defence, it was argued that they were one continuous structure, requiring only a fee of 10s. for the whole. After hearing the arguments on both sides,

Sir Robert W. Carden said that while 25*l.* 10s. was too much to pay for the surveyor's fees for the 51 arches, he thought 10s. was too small; but taking the Act of Parliament as it stood he could only order one fee to be paid for the whole of the arches.

Mr. Clarke then asked for a case to go to a superior court, and it was agreed that as the question was one of much importance to builders and district surveyors, a case should be agreed upon to get the decision of a superior court upon it.

THE ALBERT EMBANKMENT.

Sir,—Seldom a complaint has to be repeated in the *Builder*, but really the neglected and dirt-clogged steps from Westminster Bridge to the Albert Embankment are in such a state as to call aloud for a shovel and broom. Provincials will say we are magnificently dirty.

R. T.

MONUMENT IN MEMORY OF DEFOE.

Sir,—I long to suggest an improvement, by way of addition to the above memorial stone. Bald and dry as the bare record is, the by-standers' interest therein would, I think, be greatly increased by the addition of a portrait: an oval medallion likeness, in profile, of the prolific writer, to whom periodical literature in especial, and all successive "rising generations," have been so much indebted.

A. H. Gent.

THE WATER-GATE.

Sir,—In your impression of the 17th ult., I notice a justly indignant letter as to the disgraceful condition of the fine old relic, Inigo Jones's "York Stairs." I entirely sympathise with the remarks of your correspondent, "R. P. W.," and may inform him and the public that when the estimates were made for the new Embankment, it was included to rebuild the Water-gate in an appropriate position. Why this is not executed we can only surmise. Some information from the Metropolitan Board should be forthcoming.

Father Thames.

DISCOVERY IN WORCESTER CATHEDRAL.

As the workmen engaged in laying a new pavement in the Lady Chapel of Worcester Cathedral were removing one of the three stone coffin slabs lying on the floor beneath the great east window, they discovered a stone coffin containing the skeleton of a man, partly enveloped in fragments of the dress in which he had been buried. When Mr. Bloxam, the well-known ecclesiologist, visited the cathedral some years ago, among other things he described to the Archæological Association the three slabs before named, with the effigies upon them. Two of the slabs have apparently no coffins or burials under them. But with regard to the third, which lies north of the other two, and is the one now to be described, Mr. Bloxam believed it to be the earliest episcopal effigy in the cathedral, and it was assigned by him to Bishop William de Blois, who died in 1236, and who laid the foundation of the Lady Chapel and its aisles. The effigy on the slab is sculptured in low relief, and the slab forms the top of the stone coffin in which the remains have been found. On the head of the effigy is the low mitre.

On lifting the slab from the pavement the open coffin appeared, containing the perfect skeleton of a tall man. The coffin had evidently at some former period been rifled of any jewelry or other valuable contents which might have been buried with the deceased. Underneath the head, and forming the cushion on which it lay, was part of a Norman shaft and capital, turned upside down, and hollowed out for the reception of the skull, as was usual in coffins of that period. The coffin had been cut both head and foot, to admit the dead body in its mitre. The coffin is 6 ft. 10½ in. long externally, and 6 ft. 5 in. inside. The skeleton was of a man an inch or two more than 6 ft. high when alive. The sutures of the head were obliterated or ossified, denoting the apparent age from sixty to seventy years.

Mr. Boutell has examined the remains, and given a particular account of them, for which see the *Worcester Herald* of 24th September.

A Public Hall, Camden-road.—It is intended to erect a public hall and reading-rooms in the Camden-road, at a cost of from 3,000*l.* to 4,000*l.* The hall is to accommodate upwards of 500 persons. The architect is Mr. Frederick R. Meeson.

OWEN'S COLLEGE, MANCHESTER.

The foundation-stone of the new building for Owen's College, Manchester of which we gave full details on the 9th of April last (page 281), has been laid on the site which has been purchased in Oxford-street, extending from Coupland-street to Burlington-street. The ceremony was performed by the Duke of Devonshire, in the presence of a large and fashionable gathering, including Professors Huxley and Tyndall, and many other members of the British Association for the Promotion of Science, who had been specially invited. The building was designed by Mr. Waterhouse, the architect of the Manchester Assize Courts and of the new Town-hall, now in course of erection in Albert-square. The style is Gothic. It will have accommodation for 600 day students, and for a much larger number of evening students. A sum of 102,000*l.* has been placed at the disposal of the Building Committee, 67,000*l.* of which are at present available for the erection of the college. The cost of the building now under contract is 90,000*l.*; so that a sum of from 25,000*l.* to 30,000*l.* is still required for building purposes. When completed, the building will form a quadrangle, of which that part of the college which is now in course of erection will form the western side. The principal front of the building will face Oxford-street.

In laying the stone, the Duke of Devonshire remarked that Owen's College owed its foundation to an act of remarkable liberality on the part of one of the successful merchants of Manchester, and its permanent and continued success was, no doubt, largely attributable to the efforts of the citizens of Manchester. Mr. Owen's bequest ought not to be measured by a pecuniary standard, but as an example which had been more fruitful of good than his money. It is understood that the projected buildings will provide ample accommodation for threefold the number of students who are at present receiving instruction in the college.

"SARCOPHAGUS."

Sir,—Will you kindly inform me the proper use of the word "sarcophagus," as applied to tombs? N.

*** A sarcophagus is the actual receptacle in which the body is placed, as its derivation from the Greek (*sarx*, flesh, and *phago*, I eat), shows.

ARCHITECTS IN RESPECT OF SCIENCE.

At the last meeting of the Northern Architectural Association, Mr. T. Oliver, the president, read an address on the position of architects in regard to science. His object, he said, was to call the attention of the association to a prominent omission and a prominent fact in connexion with the architectural profession, and the development and progress of what was called social science. Not only as a body, but as individuals, architects had hitherto, in his opinion, held themselves aloof from discussing scientific matters, not only to the detriment of science itself, but to their position as scientific men. Architecture, while essentially an art, was also a science. Its practical application incited a knowledge of the science of construction in its ramifications, details, and materials, and in its varied adaptations to the material wants of mankind. He maintained that the architect must be a man of science if he aspired to eminence and public appreciation. Called to lay out towns, plan streets and dwellings, it became absolutely necessary that his scientific qualifications should be brought into requisition, as well as that artistic power which enabled him to clothe a building with the greatest beauty. Architects as a body, he must confess, were both scientifically and practically competent to grapple with all such difficulties, and indeed, in their ordinary practice, really did so. It was, however, a singular circumstance that architects did not take that active part, and apparently that active interest, in purely scientific matters as the members of the medical profession, both collectively and individually, took. On the one hand, the architect was practically conversant with the improvement of unhealthy dwellings, the removal of impure excreta, the improvement of drainage, and the general application of the principles of ventilation, as well as the designing of new streets and dwelling-houses; while, on the other hand, the medical practitioner knew and dealt with practical results rather than with practical scientific remedies. He referred, of course, to the bricks and mortar, and not to the medicinal question, but did not for a moment detract from the influence of the medical man. He pointed out that architects, inasmuch as they had so much to do with the dwellings of the people, were the best persons to assist in remedying the causes of disease in regard to drainage, ventilation, &c.; and he was persuaded that no religion, education, politics, laws, or penalties would so greatly benefit mankind as a healthy and happy home; and how to make this no one knew so well as an architect.

CHURCH-BUILDING NEWS.

Kington (near Hereford).—The new church at Evancoyd has been consecrated. It is from the designs of Mr. T. H. Wyatt, of London, and is in the Gothic style of architecture of the Early Decorated period. The vestry abuts upon the north wall of the chancel, and the general entrance to the church is by a porch on the north side, from which large folding doors open directly into the nave, and a smaller one at the side leads into the aisle. The interior of the church is uniform, the seats, &c., being all of dark stained wood. At each end of the church are large stained-glass windows, the one being erected as a memorial of the late Mr. Higgins Mynors.

Folkestone.—St. Peter's Church, at East Cliff, which has lately been undergoing considerable alterations, has been re-opened. By the extension, seats have been provided for 350 people, in addition to the choir, this being about 150 more than the original building accommodated, and the increase has been effected by the addition of an aisle on the north side. An improvement has been effected in the appearance of the building by increasing the elevation of the roof, and an extension of the chancel and north transept; but the ornamental work is not yet complete. The chancel rises above the level of the floor of the nave, while seats for the choir are ranged on each side, and the vista is terminated by an altar rising some 2 ft. or 3 ft. above the choir, and approached by steps. The stained glass windows, representing various Scriptural subjects, surmount this, and the altar is flanked by two candelabra.

Prittlewell.—The Rev. S. R. Wigram, vicar of Prittlewell, has received subscriptions already amounting to more than 2,000*l.* to enable him to carry out a restoration of the parish church. The church is one of the largest in Essex; but as it has been left in a state of decay, it will require 6,000*l.* for its complete restoration.

Ore (near Hastings).—St. Helen's Church has been consecrated by the Bishop of Chichester. It was found necessary to erect the church on a new site in a more central position, the chief reasons being that on account of the height to which the churchyard had risen round the old walls, and the number of graves against these walls and the vaults, no enlargement could have taken place. The old tower stands and all the ancient parts, and in the tower are collected all the monuments of the past affixed to its walls. The new church has been erected with a lofty tower and spire on a commanding site,—on the top of the hill on St. Helen's estate. The spire is a landmark from the sea, and all the inland country for many miles around. The new church is of the Decorative period of English Gothic architecture. It consists of a nave, side aisles, chancel, tower and spire, and vestry. The accommodation is for about 400. The roof timbers are exposed to view. The building is heated with hot water throughout. There are inner porches to each door to prevent draughts. The church has been erected solely at the expense of the Rev. T. W. Turner, the rector of Ore, who previously built another church at the other end of his parish, also at his own cost. The land on which it is erected was given by Mr. E. Habershon, of Beaulieu, Hastings. The stained-glass east window was given by Bishop Harding, of St. Helen's Lodge, Ore. The architects were Messrs. E. Habershon & Brock, of London; and the builders, Messrs. Hughes, of St. Leonards-on-Sea.

Bristol.—The contract for the first portion of the works connected with the building of the new church of St. Mary's, Tyndall's Park, has been taken by Mr. Diment, of this city, builder, and excavations for the foundation are commenced.

Silloth.—A new church, called Christ Church, has been opened at Silloth. The edifice has

been built by subscription. It is simple in its conformation, consisting of a nave and north and south aisles, with two small transepts or chancel aisles, built in the earlier form of Gothic architecture, freely treated. The north transept forms an organ chamber and vestry, with a cellar underneath for the heating apparatus. The exterior elevations are of Irish granite, which had been brought over to Silloth as ballast to vessels, and the interior is lined with white and red fire-bricks. The nave is surmounted by an open roof of Memel timber, the chancel being close boarded in oak. The nave seats are simple open benches. The chancel fittings are all of oak, with rosewood introduced in portions of the designs. The total length of the church is 94 ft. 6 in., the nave being 63 ft. long, and the apsidal chancel 31 ft. long, both 21 ft. wide. The accommodation provided is for about 500 persons. The church stands in a square by itself, being placed so that one of its longest sides faces the Solway, and on this side inclosing the main entrance door, and forming a porch to it, it is intended to build the tower, a subscription for which purpose has just been opened. The design of the church was selected from a series sent in for competition in April of 1865. The author of the design was Mr. Charles J. Ferguson, then a pupil of Mr. George Gilbert Scott, now of the firm of Cory & Ferguson, of Carlisle, architects. The mason and bricklayer's work was carried out by Mr. Graves, of Aspatria; the carpenter and joiner's work by Mr. Thompson, of Silloth; the plumber's work by Messrs. Thompson; and the painter and glazier's work by Mr. Westray, of Carlisle. The amount expended on the present contracts has been a little under 3,000*l.*

Northampton.—St. James's Church, St. James's-end, Northampton, has been consecrated. The church is in the Early English style, and consists of a nave, south aisle, chancel, south chapel, and vestry. Arches have been thrown in under the clearstory of north wall, to facilitate future extension. The south clearstory is supported by an arcade of four arches, the columns being of polished red granite, with carved caps of Bath stone. The nave clearstory is pierced on each side with twelve lancet-headed windows, formed in groups of three, placed over the crown of each arch. The clearstory is continued along the north and south wall of the chancel. A series of six lights on each side the internal arches, to the chancel windows, are supported by red Mansfield stone shafts, the caps and bases being of Bath stone. The east window is formed of three lights, surmounted by a rose-window, containing nine circles. The south chapel is divided from the chancel by two arches, the central column being of red polished granite, with foliated caps and moulded bases. The chancel walls are ornamented with bands of encaustic tiles. The arch dividing nave from chancel takes the whole span of the central aisle, and is 24 ft. wide. The arch is supported by marble shafts, and terminated with stone and brick corbels. The principal entrance is through a western doorway, above which are two lancet-windows, and the gable is pierced with a quatre-foil opening. The bell-turret, at north-west angle of nave, takes an octagonal form, and is terminated with a spire of Bath stone. The roofs are constructed of deal, stained and varnished. The chancel roof is formed in panels, which are ornamented by means of stencil patterns, applied with a dark stain upon a ground-work of boarding left its natural colour. The mouldings of panel are also stained dark. The nave roof is constructed with beams and king-posts, each rafter being framed alike. The nave and aisles are seated with open benches, of a plain nature. The chancel is furnished with stalls and sub-sellæ, and the altar is approached by five steps, including the foot-pace. The sacrarium floor, as well as the other parts of the chancel, are laid with Minton's tiles. In the south wall, a double sedilia is constructed, divided by a marble shaft. All the walls are built with red brick, both externally and internally, the outside face being varied by the use of bands of local stone, from the Duston quarries. The arches of all doors and windows are also alternated in blocks of local stone and brick. The works have been designed by Mr. R. Wheeler, of Tunbridge Wells, architect; Mr. Ayton acting as clerk of works. The builder was Mr. Kightley, of Northampton, and the carving was executed by Mr. Earp, of Lambeth. The cost of the structure and boundary fences is about 2,700*l.*, and the accommodation is for nearly 500.

Upton.—The Church of the Good Shepherd, near Upton, has been consecrated. The site was given by Major Martin. The expenditure has been upwards of 1,300*l.* The design was furnished by Mr. G. Row Clarke; and Mr. Griffiths, of Eldersfield, was the builder. The new edifice contains about 120 sittings. The style is of the Transitional period, from the Early English to the Decorated; length from east to west, 72 ft.; width, 22 ft. 6 in., both inclusive of walls. There are a chancel and nave, but no aisles; a bell gable over the chancel arch; a vestry on the north side of the building, and a porch at the south-west angle; a steep-pitched open wood roof, tiled; trefoil-headed lancet lights in the side walls, and other windows, two and three lights, with Decorated tracery. The chancel arch is pointed, has a roll moulding at the angles, and rests on square chamfered piers, the caps of which are carved with conventional foliage. Similar carving enriches the various corbels and dripstone terminations throughout the building.

Miscellanea.

Lifting Houses.—As the city spreads it is often found desirable to remove buildings in order to raise others more suited to the site. But the old buildings must not be wasted or injured. How can the difficulty be met? It is almost the case of the Irish magistrates who, it is said, passed a resolution to build a new gaol from the materials of the old one; and another resolution that the old gaol should not be pulled down till the new one was ready. Almost, but not quite. The people of Chicago put the old gaol on rollers and take it off elsewhere prisoners and all; so that the new one can be erected on the site of the old, and yet the old gaol not be taken down. I was told of a church, steeple included, which was thus taken from one end of the city to the other. I saw a specimen of house-removal in the town of Buffalo. A wooden dwelling, three stories high, was slowly passing along a street, entirely filling it, the trees of the avenue being injured by the house tearing off many branches on its way. A woman was nursing a baby at an upper window, calmly surveying the scene as she passed along. The method was as follows. A strong rope was fastened to the bottom of the house, and was wound, by a single horse, round a windlass which was planted in the middle of the street. A number of men were at work conveying the rollers from the rear to the front. From time to time the windlass was planted farther up the street as the house advanced. Of course, for the time all other traffic was stopped in the street thus occupied. I was glad to witness for myself what might have seemed an exaggeration. This is a frequent occurrence in Chicago.—*Newman Hall's Journeyings in America.*

Milner's Safes and the British Association.—We have received particulars of some experiments made with Messrs. Thomas Milner & Son's fire and thief resisting safes, at the Phœnix Safe Works, Liverpool. The results of the tests appear satisfactory in every way. In the first instance an ordinary cast-iron safe, without any fire-resisting chambers, and one of Messrs. Milner's ordinary fire-resisting safes, of the weakest quality, were tested in a large fire composed of coal and wood, the result being, after two hours and a half, that the former was entirely destroyed, while the latter remained intact, a 100*l.* note and a large number of circulars which were placed in its interior being wholly untouched. In a second test, one of Messrs. Milner's safes, containing a 100*l.* note, several gold watches, and a number of circulars, was consigned to a terrific fire, in which it remained for five hours and a quarter without any effect of the flames—save a dulness in the colour of the iron—being visible, while the contents were perfectly unharmed.

Birkbeck Literary and Scientific Institution, Southampton Buildings. — This institution has just issued its prospectus for the winter session. The alterations in the class-rooms, which were rendered necessary by the large increase in the number of members, have been completed, and the list of classes has been much extended. Arrangements have also been made by which a course of technical instruction can be obtained. A special course of lectures on the history of art, by Dr. G. G. Zerffi, is announced. These will be illustrated by about 3,000 diagrams, plans, maps, and photographs.

The Metropolitan Asylum at Leavesden. The ceremony of consecration of the chapel and burial-ground, combined with what may be termed the official opening of the new Metropolitan District Asylum for the Imbecile Poor of London, at Leavesden, Woodside, near Watford, has been held. The Leavesden Asylum, of which we have given illustrations, is situated on rising ground about four miles from Watford, and lying between that town and King's Langley. The works have been carried out, and the entire building and fittings, furniture, &c., completed at a cost of 135,570*l.* The buildings are designed to accommodate 1,620 patients—730 males and 890 females. There are on the female side five general blocks, each for 160 patients, 105 ft. by 38 ft., and an infirmary block for sixty patients. On the male side are four blocks for 160 each, and an infirmary block, the whole being connected with covered corridors. The extreme length of the corridors, from the kitchen to the most distant blocks, is 180 yards on the female, and 138 yards on the male, side. The chapel, which will accommodate a congregation of 600 persons, is placed on the left of the administrative block in the frontage. The kitchen, which is fitted with every kind of gas and other apparatus for cooking, is 50 ft. by 45 ft., and 25 ft. high, with thorough ventilation, and large enough to cook for fully 2,000 persons. The day-rooms are each 105 ft. long by 38 ft. wide.

The Moabite Stone.—At the Liverpool meeting of the British Association, the Rev. Dr. Ginsburg read a paper on the "Relation of the Ancient Moabites to Neighbouring Nations, as disclosed in the newly-discovered Moabite Stone." He said that the inscription on the stone read almost like a chapter of the Bible, and when it was borne in mind that this curious relic dated back 900 years before Christ, it would be seen that the inscription was older than two-thirds of the Old Testament. Out of twelve or fifteen Moabite cities mentioned in the Old Testament, eleven were enumerated in that inscription. He had come to the conclusion that at the period indicated an organised temple service existed amongst Jews out of Palestine, and that that service must have been very much akin to the service of the Moabites; that 900 years before Christ the word Jehovah, which was afterwards so much avoided by the Jews, was so much upon the lips of every Jew that it passed over to a neighbouring nation; that the language of the inscription, which was far more simple than two-thirds of the Old Testament, showed that the Moabites had attained to a high state of cultivation; that in military prowess they were superior to the Jews; and that the ancient Greeks and Romans, and we ourselves, had derived what had become our alphabet from them. A discussion followed.

An American Hotel.— On the 25th of August, the doors of the Grand Central Hotel, situate on Broadway and facing Bond-street, New York, were thrown open for the first time. This hotel will accommodate 1,500 guests in its 650 rooms. The superficial area of each floor is over 35,000 square feet, and the top-floor surface dimensions of the interior amount to 350,000 square feet. There are two courts in the centre, 20 ft. wide by 160 ft., affording light and ventilation. These courts are bridged by the main hall on each floor. Fire-hose is conveniently located on each floor, while two large tanks, each holding 10,000 gallons of water, are situate on the top of the hotel. There are five staircases, two elevators, and scuttles to the roof. The building is heated by thirty miles of steam coil. In the statistics of the hotel we find the number of bricks, 4,000,000; cost of building and ground, 1,500,000 dols.; cost of furnishing, 500,000 dols.; water supply in tanks (in gallons), 20,000 dols.; number of doors, 2,000; depth between Broadway and Mercer, 200 ft.; height to top of flagstaff, 197 ft.; length on Broadway, 275 ft.; number of halls, 50; ceilings, average height, 12 ft.; number of stories, 10; acres of carpeting, 7; steam-engines, 3; elevators, 2; acre of marble tiling, 1.

National Association for the Equalisation of Poor-rates.—This association, the president of which is the Lord Mayor, held a committee meeting on Tuesday last at the Westminster Palace Hotel. A letter was read from Lord Alfred Churchill, stating his consent to become one of the vice-presidents; also letters from gentlemen in various parts of the country, approving the objects of the association. The meeting resolved to take vigorous action.

New Railway Stations.—The new stations at present being built in the Midland Counties are rather numerous, and find a fair share of work for the builder, and those more or less interested in the trade. Amongst the largest and most important is the erection of a new Great Western station at Snow-hill, Birmingham. The old structure has been taken down, and in its stead a new brick erection is beginning to make its appearance. The building is to be erected on a scale suitable to the traffic. The London and North-Western are erecting a large goods station at Derby, where a considerable amount of business is done. The building is of brick, and is being erected by a Rugby firm. It is almost ready for roofing. The vast colliery population of Clay Cross and the district has induced the Midland Company to erect a new station. The building is fast approaching completion. A population capable of producing 400,000 tons of coal for London yearly has gathered round the place. A new station is also nearly finished at Chesterfield. The building is composed of pressed fire-bricks, with wooden platforms, the covering being iron and glass. At Unstone a new station has been built, with two platforms, 100 yards in length and 13 ft. broad.

Whitworth Scholarships for 1870.—The award of the ten Whitworth Scholarships of 100*l.* each for the year 1870 has just been made to the undermentioned candidates:—To those examined as students—W. Garnett, 19 years of age, student, London; Jas. Taylor, 21 years of age, mechanic, Oldham; J. A. Griffiths, 22 years of age, engineer student, Middleton; H. W. M'Cann, 17 years of age, student, Liverpool; J. Perry, 20 years of age, engineer, Belfast. To those examined as workmen—Edwd. Tomkins, 24 years of age, engineer and draughtsman, Manchester; Wm. Dodgson, 25 years of age, mechanic, Manchester; Frank Salter, 21 years of age, mechanical engineer, Leamington; W. S. Hall, 25 years of age, engineering draughtsman, Nottingham; Hy. Dyer, 21 years of age, mechanical engineer, Glasgow.

Exhibition of Works of Art for Relief of Widows and Orphans of Germans Killed in the War.—A collection of over 250 works of art, comprising oil and water-colour paintings, prints, photographs, and sculpture, is at present being exhibited at the gallery of the New British Institution, 39, Old Bond-street. All the works contributed are for sale, and many of them will be disposed of by a prize drawing, to take place at the German Academic Society, on the 30th and 31st of December. The committee of this exhibition has made a fatal mistake, which may prevent its being a great success. There should not have been even a suspicion of partisanship in the matter. It should have been organised for the benefit of the widows and orphans of the French as well as the Germans.

Memorial Chapel to Whitefield. — A memorial chapel to the Rev. George Whitefield, the St. Paul of the eighteenth century, as he has been called, is about to be erected in Gloucester, his native city, and within a few yards of the spot whereon tradition says he preached his last sermon in Gloucester. A site at the south-west corner of Barley Close, near the Park, has been selected; the chapel is to be in the Gothic style of architecture, with spire and illuminated clock; provision is to be made for 600 worshippers; the estimated cost is 2,500*l.* Messrs. Medland are the architects. Over the chief entrance is to be a carved representation of Whitefield preaching to a multitude.

TENDERS.

For new male wing to the Hull Borough Lunatic Asylum. Mr. W. Botterill, architect. Quantities supplied:—

Fewster	£1,389	0	0
Brown	1,385	0	0
Goodwin	1,365	12	9½
Habbershaw	1,365	0	0
Hockney & Liggins	1,355	0	0
Walls	1,344	12	0
Halls	1,325	0	0
Lison & Wilkinson	1,322	6	5
Waller	1,281	0	0
Jackson	1,247	14	6
Evington & Wharam	1,245	10	0
Musgrave	1,242	0	0
Marshall	1,240	0	0
Skinner	1,168	0	0
Siminson & Frow	1,167	15	0
Stanley (accepted)	1,162	0	0

For alterations and additions to premises in Crutched Friars. Mr. Joseph Gibson, architect. Quantities supplied:—

Turner (accepted)	£1,134	0	0

For Epsom Cemetery, Buildings, and Mortuary Chapels. Messrs. Shaw & Young, architects:—

Nightingale	£3,362	0	0
Mansfield, Price, & Co.	3,294	0	0
Holland & Hannen	3,288	0	0
Todd & Sanders	3,287	0	0
Hitchcock	3,285	0	0
Peskett & Taylor	3,244	0	0
Batchelor	3,200	0	0
Pritchard	3,179	0	0
Jackson & Shaw	3,160	0	0
Pollard	3,138	0	0
Wright	3,125	0	0
Blackmore & Morley	3,112	0	0
Nye (accepted)	3,078	0	0
Chappell	3,000	0	0
Gibson, Brothers	2,977	0	0
Hemming & Son	2,975	0	0

For building the nave and aisles of the Church of All Souls, Grosvenor Park, Camberwell. Messrs. Henry Jarvis & Son, architects:—

Gammon & Sons	£6,481	0	0
Thompson	5,930	0	0
Dove	5,855	0	0
Myers & Sons	5,746	0	0
Longmire & Burge	5,723	0	0
Henshaw	5,703	0	0

For finishing two houses, with shops, Birkbeck-road, Holloway. Mr. N. E. Jennings, architect:—

Mann	£705	0	0
Nightingale	689	0	0
Faulkner	660	0	0

For national school, Regency-square, Kennington. Mr. C. A. Gould, architect:—

Jackson & Shaw	£749	0	0
Nightingale	733	0	0
Ebrow	728	0	0
Nixon & Son	693	0	0

For St. Simon's Schools, Upper Chelsea:—

Ford	£1,250	0	0
Lacey	1,150	0	0
Nightingale	1,142	0	0
Williamson & Brunt	1,135	0	0
Cowland	1,120	0	0
Steel	1,111	0	0
Goff	1,050	0	0
Parsons & Telling	1,025	0	0
Puttick	1,019	0	0
Whittaker	1,010	0	0
Shillito	955	0	0
Barber & Groom	869	0	0
T. & A. Pearce	867	0	0

For works, 19, James-street, Buckingham-gate. Messrs. Middleton & Goodman, architects:—

Manley & Rogers	£1,377	0	0
Carter & Son	1,357	0	0
Nightingale	1,350	0	0
Scrivener & White	1,309	0	0

For sundry alterations and additions to Sharon Villa, East Sheen, for Mr. Louis Blaise. Mr. John Thomas Wimperis, architect:—

Fish	£1,394	0	0
Adamson & Sons	1,157	0	0
Perkins (accepted)	1,055	0	0

For lining a portion of the Hertford sewers to prevent the ingress of subsoil water. Mr. Thomas W. Grindle, Engineer to the Hertford Corporation:—

Hubbard	£659	0	0
Anderson & Dunmore	525	0	0
Turner & Cole	459	8	0
Dyne	450	10	0
Keeble	450	0	0
R. & W. Andrews	431	5	0
Carter	430	0	0
Bugbird	425	9	0
Strickson (accepted)	404	0	0
Porter	395	0	0

For the erection of boys' and girls' schools, &c., for the district of St. Philip the Evangelist, Arlington-square, Islington. Mr. Alexander D. Gough, architect:—

Cohen	£3,350	0	0
Jackson & Shaw	2,946	0	0
Markwick & Thurgood	2,886	0	0
Crabb & Vaughan	2,842	0	0
Chappel	2,799	0	0
Snowball	2,774	0	0
Potter	2,767	0	0
Wood	2,750	0	0
Colls & Sons	2,723	0	0
Bishop	2,645	0	0
Crockett	2,629	0	0
J. & A. Wright	2,625	15	0
Merrion	2,618	0	0
Hill, Keddell, & Waldram	2,615	0	0
Winship	2,590	0	0
Myers & Sons	2,588	0	0
Newman & Mann	2,586	0	0
Cole	2,575	0	0
Nightingale	2,525	0	0
Heughden	2,495	0	0
Henshaw	2,443	0	0
Blease	2,378	0	0
Gibbs & Son	2,339	0	0
Parsons & Telling	2,235	0	0

For house and two shops, at Wandsworth, for Mr. Diplock. Mr. C. Foulsham, architect. Quantities furnished by Mr. Thomas Nixon:—

Nixon & Son	£1,090	0	0
Colls & Co.	1,075	0	0
Thompson	1,060	0	0
Marsland	1,053	0	0
Taylor & Pitts	1,022	0	0
Taylor	970	0	0
Shillito (too late)	930	0	0

For making alterations and additions to Torrington Lodge, Cleygate, Esher, the property of Mr. H. T. Edwards. Mr. F. Allen Edwards, architect:—

Williams & Son	£1,083	0	0
Stephens	974	10	0
Chessum	953	0	0
Whittick	895	0	0

For new Foresters' Hall, Wilderness-row. Quantities by Messrs. Lansdown & Pollard:—

		Extra if Malm Facing.		
Nightingale	£7,829	£50	0	0
King & Son	7,700	65	0	0
Higgs	7,653	47	0	0
Crabbe & Vanghan	7,500	120	0	0
London Building Companies	7,370	32	10	0
Eaton & Chapman	7,320	30	0	0
Capps & Ritso	7,176	46	7	6
Winship	7,130	40	0	0
Wicks, Bangs, & Co.	6,989	40	0	0
Henshaw	6,865	45	0	0
Wigmore	6,850	46	7	6
Crockett	6,639	31	0	0
Hoare & Cleland	6,298	149	0	0

For infirmary, &c., Stockwell Orphanage:—

Colls & Sons	£1,588	0	0
Thompson	1,575	0	0
Croker	1,571	0	0
Gibbs & Son	1,546	0	0
Tarrant	1,539	0	0
Hart	1,497	0	0
Nightingale	1,386	0	0
Cullum	1,350	0	0

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WANTED, a Person who has a connexion amongst builders and buyers of Fire Clay Goods, to SOLICIT ORDERS for BUILDING MATERIALS and FIRE CLAY GOODS. Will be paid partly by salary and partly by commission.—Address, stating salary and commission required, ALPHA, Office of "The Builder."

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WANTED, by an experienced Young Man, a SITUATION, as CLERK or ASSISTANT. Thoroughly understands keeping prime cost, day work, and other accounts; levelling, preparing plans, estimating, and measuring up work. Good references. Aged 24. Town or country. No objection to go abroad.—Address, M. L. Office of "The Builder."

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WANTED, an ENGAGEMENT as CLERK of WORKS.—Address, 433, Office of "The Builder."

TO ARCHITECTS.

WANTED, an ENGAGEMENT as ASSISTANT. Can design, survey, and prepare working and detail drawings, specifications, &c.—Address, P. Q. Mr. Robertson's, 95, Upper-street, Islington.

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WANTED, by a steady Young Man, a Mason and Lettercutter, with a little knowledge of carving, a constant PLACE. Good references.—Address, J. TYRER, Bailow-street, Bishop Stortford, Herts.

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WANTED, by a thoroughly practical Man, of many years' experience, a SITUATION as MANAGER or YARD FOREMAN, with a view to purchase or partnership.—Address, with full particulars, B. B. Post-office, High-street, Tunbridge Wells.

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WANTED, by the Advertiser (aged 19), EVENING EMPLOYMENT, to KEEP BUILDERS' BOOKS and ACCOUNTS, or Copy and Trace Drawings and assist to take off Quantities.—BETA, 18, Hurley-road, Lower Kennington lane.

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WANTED, by an experienced Man (Carpenter by trade), a RE-ENGAGEMENT as GENERAL FOREMAN, or to Take Charge of a Job. Town or country. Thoroughly competent. Good reference.—Address, F. R. 15, Denbigh-terrace, North, Battersea, S.W.

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WANTED, a SITUATION, as WORKING FOREMAN of PAINTERS, by a first-class workman. Is a good grainer and gilder.—Address, F. G. 84, Lillington-street, London, S.W.

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WANTED, by the Advertiser, a SITUATION, as PLUMBER, GAS-FITTER, and PLAIN ZINC-WORKER.—Address, S. S. 27, Golding-on-street, St. Pancras, N.W.

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WANTED, by the Advertiser, a quantity of JOINER'S WORK, by Contract, or a Situation as Shop or General Foreman. Good references.—Address, G. B. 42, Camberwell-road, S.E.

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WANTED, by an experienced Man, a RE-ENGAGEMENT as CLERK. Thoroughly acquainted with the whole routine, booking, prime costs, accounts, estimating, preparing bills of quantities, &c. Town or country. Aged 29.—Address, A. B. 24, Howland-street, Tottenham-court-road, W.

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WANTED, by a steady Young Man, who is a thorough PLUMBER, a constant SITUATION, or Job, Piecework or otherwise.—Address, E. M. D. 71, Philip-street, Queen's-road, Wandsworth-road.

WANTED, by the Advertiser (Carpenter and Joiner by trade), a SITUATION as CLERK of WORKS, or GENERAL FOREMAN. Well up in measuring, fair draughtsman, used to quantities, and superintending men. Satisfactory reference.—Address, G. L. 224, Piccadilly.

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WANTED, a RE-ENGAGEMENT, as CLERK and CASHIER. Aged 24. Eight years with last employers. Excellent references.—Address, 436, Office of "The Builder."

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WANTED, by a Young Man, a JOB. Is a good plumber. Has no objection to fill up time at painting or glazing.—Address, W. H. 61, Amberley-road, Paddington.

TO BUILDERS AND DECORATORS.

WANTED, by a respectable middle-aged Man, a SITUATION as FOREMAN or WORKING FOREMAN of PAINTERS.—Reference as to character and sobriety.—Address, Y. Z 17, Clarendon-square, Euston-road, N.W.

TO BUILDERS AND DECORATORS.

WANTED, by a Young Man, a RE-ENGAGEMENT. Is a good book-keeper, can measure up work, estimate, and bill. Used to routine, and capable of undertaking the management of a small business. Unexceptionable references. Country not objected to.—Address, 513, Office of "The Builder."

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WANTED, by an experienced practical Man, a RE-ENGAGEMENT as CLERK of WORKS or General Managing Foreman. Competent to prepare plans and working drawings, measure up work, and take out quantities.—Address, A. Z 42, Grafton-road, Kentish-town, N.W.

WANTED, a SITUATION, as JUNIOR CLERK. Thoroughly understands all office work.—Address, Z. A. M. 24, Eccleston-street, Pimlico, W.

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WANTED, a RE-ENGAGEMENT, as BUILDER'S CLERK. Age 25. Has served some time at the practical part, used to measure up work, take out quantities, quick at figures. Good draughtsman. Salary moderate. First-class personal references. — Address, S. N. B. No. 68, Albany-street Regent's Park, N.W.

TO ARCHITECTS AND SURVEYORS.

WANTED, a RE-ENGAGEMENT, by an ASSISTANT, who is competent to prepare working, detail, and perspective drawings, well versed in construction, &c. Eight years' and a half experience. Good references.—Address, S. R. 48, Foley-street, Portland-place, W.

TO NOBLEMEN, GENTLEMEN, BUILDERS, &c.

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WANTED, an ENGAGEMENT, temporary or otherwise, by the Advertiser. Is a good draughtsman; well up in details and construction, taking out quantities, measuring up work, book-keeping, &c. Six years' reference to last employer. Aged 37.—Address, R. A. 66, Ernest-street, Albany-street, Regent's Park.

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WANTED, by a good practical Gas and Hot-Water APPARATUS FITTER, WORK in the above, or would have no objection to take a Job Piecework. Can be well recommended.—Address, to M. A. 2, Ingram-court, Fenchurch-street, City, E.C.

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WANTED, a RE-ENGAGEMENT, as CLERK. Fully competent. Aged 22. Moderate salary.—Address, S. 236, Vauxhall Bridge-road, S.W.

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WANTED, by the Advertiser, an ENGAGEMENT in an ARCHITECT'S OFFICE, in Town, country, or abroad.—Address, C. J. G. care of Housekeeper, 118, London Wall.

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WANTED, an ENGAGEMENT, by a practical Man, as FOREMAN of BRICKFIELD; or by the Thousand. No objection to going abroad. Good scholar. First-class references.—Address, S. S. T. James Bates's Brickfield, Camberwell-grove, Surrey.

WANTED, by a practical Man, Carpenter by trade, RE-ENGAGEMENT as OUT-DOOR FOREMAN or to Take Charge of a Job. No objection to the country. First-class references.—Address, X. Y. 32, Cross-street, Islington.

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WANTED, by a practical CLERK of WORKS, or BUILDER'S FOREMAN, a SITUATION as the above. Well up in church work. Over ten years' good references from London firms and architects. Age 40. Joiner by trade.—Address, W. D. G. 81, Salisbury-street, Marylebone, N.W.

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ZINC WORKER, good, practical, in all its branches, WANTS a SITUATION. Town or country. Well up in roofing on the improved principle.—J. E. B. 7, Compton-street, Clerkenwell.

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